0612 12 I 49.2: C 78/8/2001

COOPERATIVE FISH AND WILDLIFE RESEARCH UNITS PROGRAM

ANNUAL REPORT
FY 2001

2002-013615 (C10)
C

COOPERATIVE FISH AND WILDLIFE RESEARCH UNITS PROGRAM

Annual Report
Fiscal Year 2001

Prepared by
Don Dennerline

I

TABLE OF CONTENTS

COOPERATIVE RESEARCH UNITS PROGRAM 1

PROGRAM HIGHLIGHTS FOR FY 2001 3
  People and Events 4
  FY 2001 Award Recipients 4

IN MEMORY 9

SELECTED ACCOMPLISHMENTS 11
  Environmental Contaminants 11
  Non-game Species 12
  Imperiled Species 13
  Game Management 16
  Fisheries Management 17
  Ecosystem Management 20
  Animal Biodiversity, Surveys and Monitoring 22
  Habitat Management and Restoration Ecology 25
  Biometrics and Modeling 28
  Other 29

STAFF 31

PROGRAM STATISTICS 47

Table 1. Percentage of Cooperative Research Unit projects by selected categories 47

Table 2. Number of projects by agencies, organizations, and other entities contracting for research services 47

Table 3. Number of publications and presentations of professional papers with co-authorship by Federal Unit staff or by others affiliated with the Unit. 48

Table 4. Number of graduate students and postdoctoral appointees participating in the Cooperative Research Unit Program by minority status, gender and degree concentration 48

Table 5. Number of degrees granted to graduate students participating in the Cooperative Research Unit Program by minority status, gender and degree. 49

Table 6. Number of students supported by cooperative education agreements and source of support 49

Table 7. Number of Cooperative Research Unit graduate students hired by individual agencies or organizations after completing their degrees 50

Table 8. Services and activities provided by federal Unit staff .... .51

Table 9. University teaching assignments and classroom lectures by Federal Unit staff 51

HONORS & AWARDS 53

PUBLICATIONS 55
- Scientific Publications of Federal Unit Staff 55
- Technical and Semi-technical Publications and Reports of Federal Unit Staff 76
- Theses and Dissertations of Unit Graduate Students 89
- Scientific Publications of Non-Student Affiliates 94
- Technical and Semi-technical Publications and Reports of Non-student Affiliates 99
- Theses and Dissertations of Unit Affiliated Graduate Students 102

To our cooperators,

This annual report of the Cooperative Research Units documents Unit accomplishments for FY 2001 in the areas of graduate education, technical assistance, and research productivity. It is the most recent in our series of annual reports, the purpose of which is to apprise Unit Cooperators of the performance of our Unit scientists in meeting Cooperator information and training needs. Needless to say, our success in this effort would not be possible without your support.

Of the milestones attained by the Cooperative Research Units in 2001, one of the most important was the completion of a 5-year funding strategy to bring the Units to full staffing and operational status. For perhaps the first time in our history, the program now has the funding needed to eliminate all unfunded vacancies and adequately support the Unit scientists in the field. This unprecedented accomplishment was a direct result of leadership by USGS Director Groat, and strong support from the Unit Cooperators and their Congressional Representatives. As a consequence, the Units were able to increase their responsiveness to the Cooperators, and sustain a high level of research, graduate education, and technical assistance during 2001. That productivity is documented in the pages of this annual report.

As you well know, prospects for the federal budget have undergone dramatic changes in recent months. For the Cooperative Research Units, mandatory increases in uncontrollable costs, coupled with the same base program funding as in FY2001, is requiring more austere Unit operations in FY2002 than before. Furthermore, the President's budget for FY2003 projects increasingly austere conditions, which will require additional economizing and possible cutbacks in some activities. At the same time, many Cooperators and potential Cooperators continue to raise questions about possible expansion of the Units program. The Wildlife Management Institute is taking a lead to address these issues and problems with the Unit Cooperators.

There will be an opportunity to discuss these and other concerns at the Unit Cooperators' meeting at the North American Wildlife and Natural Resources Conference this April in Dallas. I know there are many competing needs on your time at the North American Conference, but I hope you can attend and discuss ideas and issues that you feel are of interest to the national program. As always, this is your meeting and I would like to solicit your involvement in setting the agenda for it. If you wish to place a topic on the meeting agenda, please call the Cooperative Research Units national office (703-648-4260) or e-mail Jim Fleming at jim_fleming@usgs.gov.

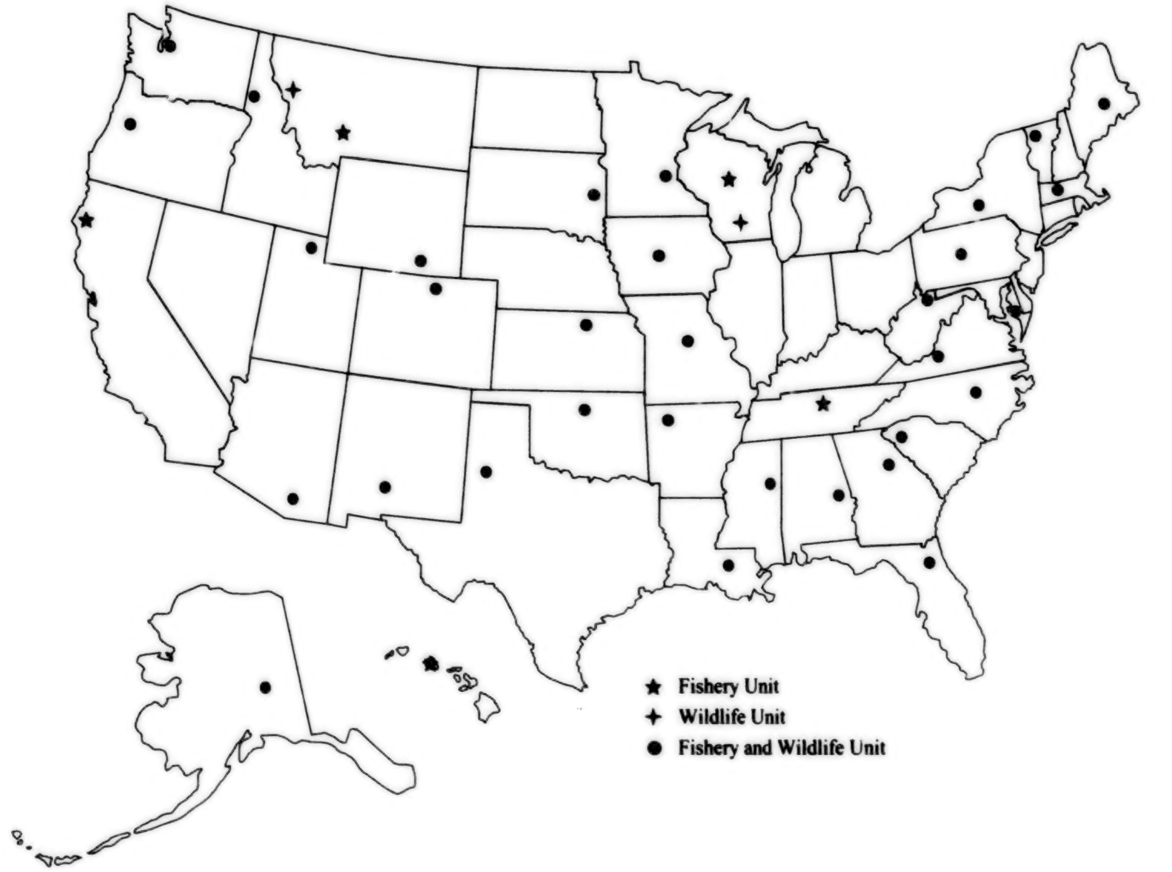
The CRU program is committed to serving our Cooperators, and we will do all we can to continue improving our support to you irrespective of the budget challenges before us. I am proud of the scientists in our program for all their hard work in meeting your needs, and I want to express my appreciation to you for the continuing support that makes it possible for them to do so.

Byron K. Williams

COOPERATIVE RESEARCH UNITS PROGRAM

The Cooperative Research Units Program is one of U.S. Geological Survey's (USGS) strongest links to federal and state management agencies. Each unit is a formal partnership among the Biological Resources Division of the U.S. Geological Survey, a State natural resource agency, a host university, and the Wildlife Management Institute. The structure of the program provides Federal and State agencies access not only to Unit scientists, but also to facilities and expertise available at the cooperating universities. Because scientists and university faculty members possess individual interests and areas of expertise, the program collectively embraces a wide array of disciplines related to fish, wildlife, and natural resource management in virtually every type of North American ecological community.

The first Unit was established at Iowa State College, in 1935, by J. Norwood "Ding" Darling. Darling was a visionary who recognized a dire need for biological information, trained wildlife managers, and dissemination of information to management agencies. Darling didn't quit with the establishment of the Iowa Unit, but went on to establish regional Units that facilitated development of a national program. In 1960, the Unit Program was formally sanctioned with the enactment of the Cooperative Units Act (PL 86-686). Today, there are 39 Cooperative Research Units in 37 states.



Cooperative Research Units have a three-fold mission: Education, Research, and Technical Assistance.

Education - Unit scientists teach university courses at the graduate level, provide academic guidance to graduate students, and serve on academic committees. Training of future resource professionals is accomplished through a "hands-on" approach as most research projects are carried out by graduate students participating with and/or under the direction of unit or other university scientists. The Cooperative Research Units Program also sponsors three minority education programs that focus on recruitment, training, research opportunities, and placement assistance for minority students: the Cooperative Wildlife Project at Grambling State University, the Cooperative Fisheries Project at the University of Arkansas-Pine Bluff, and the Native American and Hispanic Program (directed by the Arizona Unit).

Research - Cooperative Unit scientists conduct research that is designed to meet the information needs expressed by unit cooperators. Unit research programs are not base funded, but rather are funded by State, Federal, and non-government agencies to meet their own information needs relating to fish, wildlife, and natural resource management. Collectively, the Program conducts over 1,000 research projects and produces more than 300 scientific publications annually. Units use each individual project as a building block in constructing research programs to provide not only applied science information for management, but also to develop new techniques, scientific theory, and principles at a more basic level. The research programs conducted by units are locally approved, as directed, by the Unit Coordinating Committee overseeing each unit. Research programs and staff expertise differ widely among units, reflecting the needs of local cooperators. The research may be of local, regional, national, or international interest. The Cooperative Research Units Program participates in two major national research and monitoring programs: Gap Analysis Program and Breeding Birds. Multiple unit projects are not unusual and take advantage of the strategic geographic locations of units dispersed across the country, and the differences in expertise among different units.

Technical Assistance - Units provide technical assistance and training to State and Federal personnel and other natural resource managers, as needed. The expertise of the Cooperative Research Unit scientists, cooperating university faculty, and biologists of the cooperating State natural resource agency is made available for this aspect of the mission. Technical Assistance consists of numerous, diverse tasks ranging from participation on a task force or a recovery team to conducting workshops or symposia to writing newspaper articles. Technical assistance is provided as a one-to-one interaction, or to groups through workshops or short courses.

PROGRAM HIGHLIGHTS FOR FY 2001

FY 2001 was a historic year for the Cooperative Fish and Wildlife Research Units. For the first time in recent memory, the program received funding to staff all Unit science positions. Reaching this level of funding marked the successful completion of a five-year strategy to raise the program's visibility and build stronger Cooperator support to achieve common goals. The USGS, state agencies, and host universities were strong advocates for the Cooperative Research Units program, helping the program to receive Administration and Congressional support to reach the full funding milestone.

The Annual Meeting of Unit Cooperators was held in Washington, D.C. in conjunction with the 2001 North American Wildlife and Natural Resources Conference. At the Unit Cooperators Meeting, there was considerable discussion about the future of the Units program and the prospects for its expansion. After some introductory remarks, USGS Director Chip Groat engaged in wide-ranging discussions with the Cooperators about developments in USGS, and the Director's vision for the Cooperative Research Units in USGS. In particular, Director Groat voiced his continuing strong support for the program, and his intention to retain CRU as a national program with centralized administration through the CRU Chief in USGS headquarters. He also indicated his support for efforts by the Cooperators to develop a strategy for CRU to meet Cooperator needs over the next several years, including the possibility of growth in the program as appropriate and needed.

The Unit program had over 1100 active projects in FY 2001 that covered a wide range of disciplines including biodiversity, instream flow, anadromous fish and migratory bird management, wetland management and restoration, wildlife disease investigations, ecotoxicology, aquaculture and fish propagation, and population genetics. Aquatic projects accounted for the largest portion of the total (31%), while terrestrial, integrative and species specific projects made up 28, 14, and 27%, respectively. Approximately 183 new projects were initiated to address state and federal agency needs. Over thirty agencies, organizations or other entities contracted Unit research services in FY 2001. The Biological Resources Division, the U.S. Fish and Wildlife Service, and State Agencies combined accounted for 70% of the projects (by number).

Unit scientists, staff and students published 494 scientific papers, submitted 266 reports to management agencies, and presented 904 papers or workshops to natural resource professional societies and agencies. Federal Unit scientists also provided a multitude of services to professional societies, boards, and committees in FY 2001. For example, federal staff reviewed 1100 papers and proposals, held 39 officer level positions on committees or panels, and maintained 78 committee memberships. Federal staff were actively involved in workshop and extension activities in FY 2001 by conducting 22 workshops, 8 symposia and 21 short courses; maintained membership on 13 task forces, 6 recovery teams and 6 public panels; just to name a few.

In FY 2001, the Unit program included a total of 758 graduate students. Federal Unit staff served as major advisors for 572 of these students (Unit students). The remaining 186 students had financial or other close ties to a unit, but did not have federal Unit staff as a major advisor (Affiliated students). Graduate degrees were received by 87 Unit students in FY 2001. Overall, the three major employers of our graduates were state agencies, universities and the U.S. Fish and Wildlife Service.

A total of the 24 students were supported through cooperative education agreements with several federal agencies

People and Events

On the national front the Cooperative Research Units headquarters' office continues to work to streamline administrative functions and improve services. Special emphasis this year was placed on the development of CRU Web, a world wide web based application for collecting, archiving and reporting the activities and accomplishments of individual scientists and the units. It is envisioned that this system will better serve the needs of all Cooperators, provide program management benefits, as well as reduce administrative burdens on scientists and university-based administrative staff. This year's annual report was created primarily through a new web-based system into which report data was entered, then automatically compiled. The web-based system also was designed to produce a web page for each Unit. Individual Unit web pages contain the information that each Unit submitted for the annual report, including the names and addresses of Unit employees, Cooperators and students and all accomplishments (publications, courses taught, professional society service, etc.). It should be noted however, that the establishment of a permanent, program-wide reporting and archiving system required a higher degree of standardization than for previous years. Therefore, data contained in the current report may not be directly comparable with data in previous reports. All data from FY 2000 forward will be maintained in an electronic database which, when fully developed, can be queried for historical information.

Recruitment activities again kept CRU headquarters and Unit supervisors busy. Our thanks to Mike Tome, Lynn Haines, and Mike Van Den Avyle for handling another active recruiting year. Assistant Unit Leaders reporting for duty in FY 2001 were: Megan La Peyre, LA; Abby Powell, AK; Louis Bender, NM; Paul Sievert, MA; William Thompson, AR; and Erin Snyder, PA. Other personnel actions in FY 2001 include: Dr. Scott Bonar (Assistant Unit Leader - NM) was promoted to Unit Leader (NM), Dr. James Wiley (Project Leader - Grambling) moved to Unit Leader at Maryland, and Dr. Dave Otis (Unit Leader - SC) moved to Unit Leader at Iowa. Recruitment activities initiated in FY 2001 and continuing into FY 2002 include science positions in Alaska, Louisiana, Wisconsin.

Unfortunately, we again must report the death of a colleague, Dr. Theodore Bjornn (AUL-F, ID). Ted will be greatly missed by his many friends within and outside of our program.

FY 2001 Award Recipients

FY 2001 marked the second year of National Awards Program that recognizes significant accomplishments of Unit scientists in areas of Scientific Excellence, Leadership, and Service. Mike Tome (chair), Terri Symens, Carl.Schreck, Charles Birkeland and Shari Weant served on the award committee for 2001. The committee solicited nominations in each award category from Unit scientists, Cooperators, and colleagues, and subsequently provided recommendations to CRU for national award recipients. Award nominations and endorsements from Unit Cooperators, collaborators, and peer scientists supported Committee recommendations and serve as the foundation upon which these prestigious awards are based. Recipients of awards are listed below for each category. There were no nominees for the Service award in FY 2001.

Scientific Excellence Award Recipients

Dr. Ken Burnham is the Assistant Leader-Wildlife at the Colorado Coop Unit. Dr. Burnham was extremely productive, scientifically, during FY 2001. He coauthored a book entitled "An Introduction to Distance Sampling" published this past summer by Oxford University Press. This is THE book on this broad subject, which includes line and point transect sampling and analysis methods for biological populations. This book replaces a 1993 Chapman and Hall book that has been reprinted twice by Chapman and Hall and reissued once by the University of St. Andrews in Scotland. The demand for this material has been very high. Dr. Burnham was also a coauthor of an Ecological Monograph that was given The Wildlife Society's Publication of the Year Award in the Monograph Category at the TWS meetings in Reno. This is the 3rd such Publication of the Year Award that Ken Burnham has received. Ken Burnham published 7 papers in peer-reviewed, national/international scientific journals. Two of these were invited papers. In addition, Dr. Burnham gave an invited plenary paper at the July, 2001 International Conference on Distance Sampling in St. Andrews, Scotland. He was a main presenter of a week-long workshop on distance sampling following these sessions

Dr. Tom Martin is the Assistant Leader at the Montana Wildlife Unit. Between 2000 and 2001, Dr. Martin has authored or coauthored at least 20 publications in very high quality journals including Auk, Science, Evolution, Journal of Evolutionary Biology, Behavioral Ecology, Animal Behavior, Ecology, Proceedings of the National Academy of Science, and Nature. This record is not a "spike" in any sense; the record from the previous several years is comparable, and an equally impressive string of manuscripts are in the development stage. Much of the work culminating in these publications was completed while Dr. Martin was serving as Editor in Chief of a primary ornithological journal. In addition, Dr. Martin was recently awarded the Elliot Coues Award by the American Ornithologists' Union, presented to one individual worldwide for pathbreaking work and meritorious contributions to bird study in the Western Hemisphere.

Leadership Award Recipients

Dr. William Krohn is the Leader of the Maine Coop Unit. Dr. Krohn was the lead researcher in conducting the GAP analysis in Maine. The GAP project in Maine was completed in 1996, however, since that time Dr. Krohn and his students have utilized GAP-type analyses to conduct additional studies of Maine flora and fauna to help the Maine Department of Inland Fisheries and Wildlife establish management priorities. The State of Maine is blessed with tremendous natural resources, however, like many states, it lacks funding to address all resource management needs. Dr. Krohn has worked tirelessly to provide the Maine Department of Inland Fisheries and Wildlife with a tool beyond the basic GAP-type project that has been conducted in other regions. This effort has provided the State of Maine with the capability to better manage its natural resources by helping to prioritize management efforts and to identify research information needs. This effort has been instrumental in helping Maine to focus its limited financial resources.

Dr. Richard Neves is the Leader of the Virginia Coop Unit. Dr. Neves has pioneered the work for establishing protocols for rearing endangered freshwater mussels, including identifying specific host fish species for glochidia and establishing methods of rearing mussels in artificial stream systems. These efforts are being utilized across the U.S. and in other countries for the propagation of freshwater mussels and to provide temporary refugia for endangered mussel species. Dr. Neves' mussel propagation work began in a small section of Virginia Tech's aquaculture research facility. Last year, Dr. Neves was successful in obtaining a $125,000 grant from the Fish and Wildlife Foundation for a new mussel aquaculture facility. A stipulation of this grant was that Dr. Neves raise an additional $60,000 to match the Foundation contribution, which he has successfully accomplished. This new facility will be completed in late 2001. Dr. Neves is highly productive in his area of expertise. In FY 2001, he published 11 refereed papers, had 6 additional publications "in press" and submitted 6 technical reports. Over the past 3 years, he has produced 24 peer-reviewed publications. Also this year, he presented over 15 technical papers, including presentations at the World Malacological Congress and at the Malacological Society of London. On a daily basis he provides invaluable technical assistance on freshwater mussel issues to biologists throughout the U.S.

Dr. Theodore R. Simons is the Ecologist for the North Carolina Coop Unit. The NC Unit, CRU, and cooperators have benefited tremendously by Dr. Simons' leadership in initiating and building relationships with other DOI bureaus, state agencies, non-governmental organizations, and individuals that extend beyond traditional geographic and demographic boundaries. These relationships have led to outstanding mentorship and training, technology transfer, advancement of science, and most importantly, protection, conservation, and restoration of our natural resources, Dr. Simons' leadership at the NC Unit has facilitated (1) meeting critical research needs of state, federal, and international agencies, (2) cooperative matching funds, (3) a critical and quality teaching resource, (4) training and education of future resource professionals, and (5) strengthening the bonds that create interaction among unit scientists, university faculty, and resource agencies. His modest personality, insightful wisdom, and guidance by example attract the best students and fuel enthusiastic interest in science and the Unit Program. He instills a desire to succeed in his graduate students, research team, and agency colleagues.

WMI Administrative Excellence Award Recipients

FY 2001 was also the second year of the Wildlife Management Institute's Administrative Excellence Award. This award program was initiated to nationally recognize university personnel that support the efforts of the CRU program. It is not possible to overstate the role that these members of the Unit family play in the day-to-day functional operation of individual Units and the national program office. We are grateful to the Wildlife Management Institute for recognizing the contributions of these individuals. Annually, the award will recognize up to three university administrative personnel, and provide each with a plaque and a $500 cash award.

Through a national nomination and selection process, the maximum number of awards (three) was given in FY 2001. Unit Supervisors and Committee members lamented over the final decision of the three recipients as the pool of nominees and their accompanying letters of support were incredibly strong.

The three recipients of the WMI Administrative Excellence Award for 2001 were: Sue Anthony, GA; Kay Brisby, CA; and Brenda VanBeek, IA. Contributions of eight other university administrative personnel were acknowledged through their nominations and letters of support: Joyce Brite, KS; Judy Christian, AL; Theresa Debarge, VT; Barbara Funke, WA; Judy Gray, OK; Becky Nestor, WV; Dee Topp, MT-F; and Debra Ziebarth, WI-W.

Theodore (Ted) Clarence Bjornn

by
Christine Moffitt, Michael Schiewe, Robert Lohn, Jerry Mallet,
Don Chapman, Robert Leonard, and Russell Strach.

Ted Bjornn, passed away 3 November 2001 after a courageous battle with a peritoneal infection at the same hospital in which he received a heart transplant Christmas 1992. Born 31 October 1932 to Clarence R. and Evelyn Bjornn in Salt Lake City Utah, Ted was a Fisheries Professor at the University of Idaho, in the US Geological Survey's Cooperative Fish and Wildlife Research Unit.

Bjornn was first introduced to fish as a young boy through his maternal grandfather with frequent weeklong fishing trips. While at home, he and his friends would often bicycle to fishing spots in the Salt Lake Valley. At age 10, Ted and his uncle Bob (age 12) were observed by the game warden with more than their limit of trophy-sized trout next to Loa Hatchery Pond on the Freemont River. Brought before the local judge, the boy's fish and fishing poles were confiscated, and the family fined $100 (a large sum in those years). From that time forward, Ted fiercely obeyed all fish and game regulations.

Ted's passion for fishing grew to a passion for fishery science with nurturing by his professors, and fishery professionals he met and worked with. Bjornn received his BS from Utah State University in 1955. His master's research at the University of Idaho was conducted at Priest Lake Idaho and provided a thorough description of the fish, the lake and the fishery. His major professor, Virgil Pratt, passed away during the project and Ted took over Pratt's classes and advising students as he completed his thesis in 1957. Following 6 months active service in the Army, Ted was hired by James C. Simpson to work for Idaho Dept of Fish and Game as regional biologist at Salmon. He began research funded through the new Dingell-Johnson program to study the steelhead and salmon stocks in the upper Salmon and used funding from a new program to construct screens at irrigation diversions throughout the Salmon River drainage to build weirs to obtain valuable stock recruit and migration information. This extensive basin wide research project provided the basis for further Fish and Game studies, and studies on the Lemhi River were used for his PhD dissertation completed at Utah State University in 1966 under the direction of William F. Sigler. Before leaving IDFG, Bjornn was promoted to Chief of Research. Ted was hired by Don Chapman to become the assistant unit leader for the newly formed Cooperative Fishery Research Unit at the University of Idaho funded by the US Fish and Wildlife Service, and remained at the Coop Unit until his passing.

Ted was known throughout North America as an expert in Pacific northwestern salmon, steelhead and trout. Ted made long-lasting contributions to the fisheries profession through his research and mentoring of more than 60 graduate students, and though collaborations with Federal, state and tribal groups on fisheries research and management projects.

Ted served on numerous panels and management teams for Columbia and Snake River salmon and steelhead. He authored dozens of scientific publications on fisheries, including studies pioneering catch and release fishing regulations for trout streams. He became a member of the American Fisheries Society in 1954. In the 1990s, Ted served with distinction on the NMFS Snake River Salmon Recovery Team (chaired by the late Don Bevan) and was their primary resource for the real, down-to-earth biology of the species at risk. His colleagues on the Recovery Team were both relieved and in "awe" as Ted called for a portable computer to continue working within days of his heart transplant surgery. This year, Ted was appointed to yet another NMFS Technical Recovery Team for interior Columbia Basin salmonids.

In recent years, Ted worked with many agencies through the most comprehensive study of adult fish passage conducted on any river in the world. With much of the fieldwork completed and the results just now coming together. In September of this year Ted completed a draft of a book on Snake River Salmon and Steelhead. This project will be completed so that the legacy of data and interpretations can remain.

Bjornn was honored by many professional awards: including the most significant paper in the *North American Journal of Fisheries Management*, numerous awards from the American Fisheries Society's Western Division and Idaho Chapter, as well as the Meritorious Service award from the Department of Interior. In May 2001, the University of Idaho honored him with induction into the Alumni Hall of Fame, their highest honor for alumni.

Ted had 5 children (two boys and triplet girls) who grew up sharing his career and enthusiasm for fisheries. After a divorce, he married Christine M. Moffitt and they enjoyed sharing their careers in fisheries research and education, gardening, and traveling.

Among the traits of Ted most admired was his reservation of judgment, and the diplomatic and dignified way he dealt with those who held different views. He seldom expressed anger and always took the time to understand and involve other perspectives. In this regard he set high standards and examples for us all.

The funeral and burial for Ted were in Utah, and a Memorial Service was held at the University of Idaho. The family suggests donations to the AFS John Skinner Memorial Fund, 5410 Grosvenor Lane, Suite 110 Bethesda, MD 20814-2199, can be made in his name.

SELECTED ACCOMPLISHMENTS

Environmental Contaminants

The Colorado Cooperative Fish and Wildlife Research Unit conducted a review of the avicide DRC-1339 on non-target birds. The emphasis of this review was on the adequacy of experimental designs, analyses and inferences used by past researchers. The review concluded that existing studies are not conclusive and that DCR-1339 has the potential for significant adverse effects on a variety of non-target species. The USFWS will use the findings to further develop and evaluate agency policies for this chemical.

The New York Cooperative Fish and Wildlife Research Unit is working with the USFWS to assess contaminant levels in a 50,000 acre wetland planned for acquisition and restoration under the North American Waterfowl Management Plan. The assessment is critical to assure that the wetland, in its current or restored state, will not present a risk to waterfowl and other wildlife.

The Texas Cooperative Fish and Wildlife Research Unit conducted a study of the effects of contaminants in Lake Mead on the reproductive development of a sentinel species, common carp. The information, collected for the USGS, documented the reproductive impacts of contaminated sites in the lake will be of use in assessing the risks of exposure and effects in other aquatic species, including endangered species such as the razorback sucker.

The Missouri Cooperative Fish and Wildlife Research Unit completed a study on vegetation response to wastewater effluent. Plant density was reduced in silt and sand soils with repeated use of wastewater, but not in soils treated with river or deionized water. Findings were supplied to the Missouri Department of Conservation to guide further studies and management of wastewater effluent as an irrigation source.

The Oregon Cooperative Fish & Wildlife Research Unit found that availability of high-lipid forage fishes, specifically capelin, sand lance, and herring, appears to be the primary factor limiting recovery of piscivorous seabird populations injured by the EXXON VALDEZ oil spill. Results were provided to the National Oceanographic and Atmospheric Administration and the EXXON VALDEZ Oil Spill Trustee Council.

The North Carolina Cooperative Fish and Wildlife Research Unit analyzed water and sediment pollution in the streams draining the Marine Corps Air Station at Cherry Point, North Carolina. This information is being used by the Marine Corps Air Station to help manage and track the directional flow of contaminants on the base and in emergency spill response efforts.

Non-game Species

The North Carolina Cooperative Fish and Wildlife Research Unit investigated ecological and behavioral factors that may constrain reproductive performance and influence colonial behavior in Caribbean Roseate Terns for the U.S. Fish and Wildlife Service. The species is peculiar in its tendency to shift colony sites, and this behavior is sometimes associated with complete breeding failures. Additionally, methods were developed to measure reproductive performance relative to stress.

The Georgia Cooperative Fish and Wildlife Research Unit investigated the effect of riparian buffer width on two bird species strongly tied to southern riparian, forested habitats. The USFWS will use this information to direct future research that focuses on the effect of riparian zone buffer width and integrity on reproductive ecology.

The Wisconsin Cooperative Wildlife Research Unit worked with the Fish and Wildllife Service to provide an assessment, including accuracy and precision, of current methodologies for evaluating population sizes of Sora and Virginia Rails for potential application to survey design for large-scale (range-wide) population surveys.

The New Mexico Cooperative Fish and Wildlife Research Unit investigated the effects of camping on vegetation and bird communities in northeastern Washington for the USFWS. The Little Pend Oreille National Wildlife Refuge is using written and digital research products in their compatible use planning.

The California Cooperative Fishery Research Unit determined the distribution and abundance of western spotted frogs within the upper Klamath National Wildlife Refuge for the USFWS. The findings are being incorporated into refuge land management practices.

California Unit surveyed seabirds breeding in the Pacific Ocean off the California coast, delineating breeding areas and analyzing population dynamics for several species. This information has been provided to DOI agencies for seabird management programs.

The Kansas Unit investigated the distribution and abundance of feral swine before and after efforts to eradicate local swine populations. On forested sites, trapping and shooting from the ground combined with aerial shooting resulted in significant reductions of swine numbers, but isolated individuals survived. These results are being used by the Department of Defense and other land management agencies to plan feral swine management programs.

The Iowa Cooperative Fish and Wildlife Research Unit examined bird habitat use at cropland edges for the U.S. Fish and Wildlife Service. Relationships between the effects of field size and farm management practices on bird use of rowcrop fields will be useful to the USFWS and state agencies for formulating best management practices.

Imperiled Species

The Arizona Cooperative Fish and Wildlife Research Unit conducted a study for the Fish and Wildlife Service, the Bureau of Land Management and a Non-government Conservation Organization to improve survey techniques for monitoring burrowing owl populations. Findings will be used to help design future large-scale survey efforts for monitoring burrowing owl population trends.

The Arizona Cooperative Fish and Wildlife Research Unit, in cooperation with the Bureau of Reclamation and the Arizona Game and Fish Commission, determined that populations of California black rails have declined in southern Arizona/California. Unit scientists determined factors that influence detection probability of California black rails during survey efforts, advancing survey methodogies for this elusive species.

The Arizona Cooperative Fish and Wildlife Research Unit, in cooperation with Arizona Game and Fish Commission, determined habitat characteristics, survey techniques, and population status of Buff-breasted Flycatchers in Arizona.

The Oregon Cooperative Fish & Wildlife Research Unit investigated spatial distributions, habitat use, diets, and behavioral interactions of Columbian white-tailed deer and black-tailed deer for the USFWS, BLM and the Oregon Department of Fish & Wildlife. The federal and state agencies are using the information to better manage habitat and populations of Columbian white-tailed deer, an endangered subspecies.

The South Dakota Cooperative Fish and Wildlife Research Unit analyzed the distribution and habitat requirements of the Topeka shiner in South Dakota. The Fish and Wildlife Service is using this information in their recover efforts for this species.

The Georgia Cooperative Fish and Wildlife Research Unit assessed the growth of two species of larval redhorse reared in three different water regimes. The results indicated that both species experienced reduced survival and growth in the higher-duration, high-velocity water. The results will provide hydropower utilities with operating guidelines to increase growth and survival of larval fishes.

The Minnesota Cooperative Fish and Wildlife Research Unit completed a comprehensive status assessment of the Northern Great Plains population of piping plover for the U.S. Fish and Wildlife Service. The assessment summarized all existing information, current research and management actions. This information was subsequently used to produce a revised Recovery Plan that identifies the species current distribution, habitat requirements, threats to its recovery and evaluates current and proposed conservation strategies.

The Texas Cooperative Fish and Wildlife Research Unit assessed the suitability of the North Canadian and Beaver rivers as habitat for the Arkansas River shiner, providing the US Army Corps of Engineers and management agencies with key information to guide potential recovery efforts for the species in the North Canadian River.

The New Mexico Cooperative Fish and Wildlife Research Unit assessed an application of the Species at Risk conservation approach at two military installations totalling 3 million acres (1.2 million ha) in southern New Mexico and West Texas for the U.S. Army Environmental Center. These installations are using the decision support tools that were developed and are examining the potential for applicability to military installations elsewhere.

The Mississippi Cooperative Fish and Wildlife Research Unit, in cooperation with the US Forest Service, completed an Assessment of foraging requirements for the red-cockaded woodpecker in Bienville National Forest, Mississippi. The findings will be integrated into forest management plans at the Bienville National Forest.

The Montana Cooperative Fishery Research Unit, in cooperation with theUS Forest Service and other federal, state and private agencies found that where westslope cutthroat trout and non-native salmonids segregated without influence of dispersal barriers, distribution boundries were were related to stream temperature. The temperature model developed will allow State and federal resource managers with a cost effective tool for assessing westslope cutthroat trout habitat suitability over a broad area.

The Montana Cooperative Fishery Research Unit, in cooperation with the National Council of the Paper Industry for Air and Stream Improvement, determined the upper thermal limits and growth optima of bull trout. The findings will be used to set appropriate thermal maximum criteria for managed forests to prevent negative effects on bull trout populations.

The Tennessee Cooperative Fishery Research Unit evaluated the capabilities of seven facilities for maintaining captive populations of adult mussels. Mussels spawned in captivity at four of the facilities. The work was conducted for the Tennessee Wildlife Resources agency who will use these results to assist with the recovery of threatened and endangered mussels in Tennessee.

The Tennessee Cooperative Fisheries Unit, in cooperation with the Fish and Wildlife Service, examined the relationship of stream discharge and mussel recruitment. This information is being used to locate and evaluate sites where mussels may successfully be re-established.

The Tennessee Cooperative Fisheries Research Unit, in cooperation with the National Park Service and the Nature Conservancy, determined species composition of the mussel fauna in the Green River between Mammoth Cave National Park and the Green River Dam. A primary goal of the MCNP is to protect and restore the biological integrity of the Green River. The results will be used by the National Park Service to maintain the unique mussel fauna within the Mammoth Cave National Park.

The Arkansas Cooperative Fish and Wildlife Research Unit, in cooperation with the Missouri Department of Conservation, examined the potential impact of native crayfish species by an introduced crayfish species in the Spring River drainage of southern MO and northern AR. This information is being used by the Missouri Department of Conservation to determine the potential impact of introduced crayfish on native species and possible mitigation efforts.

The Virginia Cooperative Fish and Wildlife Research Unit developed algal diets for rearing juvenile freshwater mussels for the North Carolina Department of Transportation (work completed by Kevin Beck and Richard Neves). Juvenile rainbow mussels were fed several diets to assess particle size selection, survival, and growth over a 45-day period in containers with two sedimant depths. The results are being used in the propagation of endangered juvenile mussels at Virginia Tech's Mollusk Propagation Center.

The Missouri Cooperative Fish and Wildlife Research Unit prepared recovery models of piping plovers in the Great Plains for the Nature Conservancy, North Dakota Game and Fish Department, U.S. Fish and Wildlife Service, and Defenders of Wildlife. Models indicate that recovery of the population is demographically and economically feasible, but a range-wide management plan for piping plovers in the Great Plains is needed to implement optimal predator exclusion strategies and to address many other factors that potentially limit the Great Plains population of piping plovers.

The Missouri Cooperative Fish and Wildlife Research Unit (along with Idaho, Iowa, Kansas, Montana and South Dakota Cooperative Research Units; Montana Fish, Wildlife and Parks; and CERC) completed a multi-state research project on the habitat requirements of sicklefin chubs. Results will assist managers to create and maintain suitable habitats in support of restoration programs.

The Kansas Unit evaluated the effects of instream and landscape-level factors on the distribution of Topeka shiners in Kansas streams. The extirpation or presence of Topeka shiners in streams was a function of the number of small impoundments in the watershed and the number of largemouth bass sampled in the stream. This information is being used by several state and federal agencies to reduce the number of small impoundments constructed in watersheds that contain Topeka shiners.

Game Management

The New York Cooperative Fish and Wildlife Research Unit, in cooperation with the Seneca Army Depot, evaluated the feasibility of using immunocontraception to manage overabundant deer herds in suburban areas. Over the 3 year study fawning rates were reduced in both treatment groups to 10% of fawn production shown by control females. Cost of treatment ranged from $300-500 per doe depending upon length of treatment and number of booster vaccinations required. The information gathered will help communities estimate the financial costs necessary to maintain a desired deer population level using immunocontraceptive vaccines, as well as increase understanding about the associated biological changes in deer caused by such vaccines.

The South Carolina Cooperative Fish and Wildlife Research Unit analyzed and evaluated data from a reward banding study of mourning doves conducted by the Ohio Division of Wildlife. Estimates of harvest rates, reporting rates, survival rates, and movement patterns will be used to evaluate effects of hunting on dove populations, and will provide data used in efforts to model the population nationally.

The New Mexico Cooperative Fish and Wildlife Research Unit facilitated completion of field work, analyses, and report deliverables for an 8-year study of black bear ecology and management in New Mexico performed jointly with the New Mexico Department of Game and Fish and Hornocker Wildlife Institute. This work will provide New Mexico Department of Game and Fish population models and methodologies to better manage black bear populations in New Mexico.

The Kansas Unit investigated the ecology of mammalian predators on Fort Riley Army Base in eastern Kansas. Coyotes appeared to influence the distribution and abundance of smaller mammalian predators in grassland areas. Opossums, raccons and female and young bobcats were particularly vulnerable to harassment and predation by coyotes. These findings are being considered for use in upland game management programs where coyotes might be used as biological control agents to reduce predation on game bird nests by small predators.

The Iowa Cooperative fish and Wildlife Research Unit, in cooperation with the Iowa Department of Natural Resources, determined that, in highly fragmented agricultural landscapes, simple models based on landscape features are a useful way to reasonably predict the influence of predators on nesting birds. The state agency will use these results to restore, protect and manage patches of habitat, such as CRP, in agricultural landscapes.

Fisheries Management

The Mississippi Cooperative Fish and Wildlife Research Unit analyzed the opinions of catfish anglers in the Mississippi River basin. Analyses, based on replies from 40[illegible] anglers will help state fish and game agencies manage catfish with particular attention to trop[illegible]shing.

The South Dakota Cooperative Fish and Wildlife Research Unit surveyed fishes in five western rivers for the South Dakota Department of Game, Fish and Parks. Information on the riverine fish communities and the distribution of aquatic habitats will assist several state resource agencies in their efforts to monitor overall watershed health.

The Tennessee Cooperative Fisheries Research Unit, in cooperation with the Tennessee Wildlife Resources Agency completed a 5-year study that has provided the agency with management alternatives that would be biologically appropriate for the Clinch River trout fishery. The report is serving as a guide to stakeholders and TWRA biologists for managing this fishery.

The Tennessee Cooperative Fisheries Research Unit found that trout growth and survival in the Hiwassee River was poor as a result of high water temperatures in late summer. The water temperatures were related to water regulation. Stakeholders and biologists are using this information to negotiate water releases that facilitate a more productive recreational fishery in the river.

The Maryland Cooperative Fish and Wildlife Research Unit assisted the State of Maryland and the Federal Aquatic Nuisance Species task force to develop a management plan for non-indigenous aquatic nuisance species In Maryland.

The Georgia Cooperative Fish and Wildlife Research Unit, working for the Georiga Department of Natural Resourecs, evaluated the survival, habitat use, and movement patterns of adult striped bass in Lake Blackshear, Georiga. This study demostrated that coolwater springs needed as themral refuge by striped bass in the lake are limited during drought years. Further, all of the fish in the study, as well as many that were not a part of the study, died by the end of the summer. Lack of thermal refuge in the lake is cited as the cause for the poor survival of adult striped bass in Lake Blackshear and is considered the limiting factor in the establishment of a self-sustating population of striped bass the lake.

The Georgia Cooperative Fish and Wildlife Research Unit evaluated the timing, duration, and extent of emigration of striped bass stocked in Lake Blackshear, Georgia for the Georgia Department of Natural Resources. The state resource agency is re-assessing their stocking and management plans for striped bass in the Flint River system based on these results.

The Oregon Cooperative Fish & Wildlife Research Unit examined interaction shifts in marine communities by use of Qualitative Mathematical Models. The results will help the Oregon Department of Fish & Wildlife understand the dynamics of these economically important communities.

The Texas Cooperative Fish and Wildlife Research Unit, in cooperation with the US Department of Agriculture, uncovered the presence of two basic types of endocrine receptors in channel catfish.

This information will be of use in understanding the role of ER in development and reproduction in channel catfish, with emphasis on applications of this knowledge in aquaculture.

The Iowa Cooperative Fish and Wildlife Research Unit determined that the time of stocking as well as stocking rates affects growth and recruitment of young-of-the-year walleye. This information is being used by the Iowa Department of Natural Resources, to formulate future fish stocking and management options for walleye.

The Mississippi Cooperative Fish and Wildlife Research Unit, in cooperation with the Mississippi Department of Wildlife, Fisheries and Parks, completed a 5-year survey of the characteristics of Mississippi freshwater anglers. The results will be used by the State of Mississippi to better manage their fisheries resources for recreational opportunities for state residents.

The Oregon Cooperative Fish and Wildlife Research Unit evaluated tagging techniques for outmigrant juvenile Pacific lamprey, but found that the juvenile lampreys are too small to effectively tag by the methods under study. This study was done to assist the US Army Corps of Engineers in management efforts for Pacific Northwest salmon.

The Oklahoma Cooperative Fish and Wildlife Research Unit assessed the genetic status of disjunct spotted bass populations in the East Cache Creek drainage in Oklahoma for the Oklahoma Department of Wildlife Conservation. DNA analysis of spotted bass from Oklahoma, Arkansas and Texas indicated that these populations are not unique and thus do not warrant any special protective status.

The Oklahoma Cooperative Fish and Wildlife Research Unit developed the Oklahoma Streams Information System (OSIS), a GIS database of fish collections and watershed information. The Oklahoma Department of Wildlife Conservation is using OSIS to database to develop aquatic habitat plans, to manage stream fisheries, and to revise endangered and threatened fish species lists.

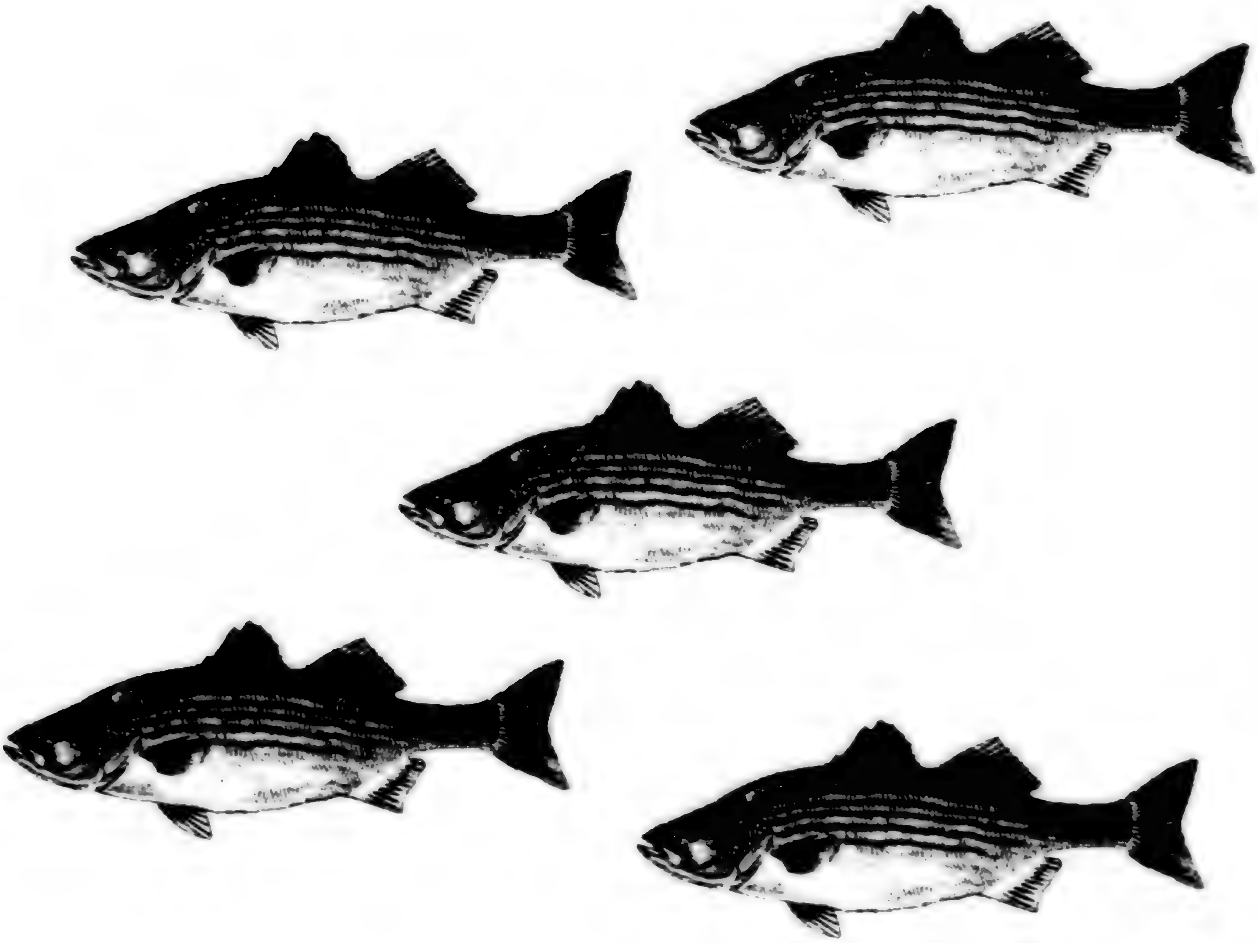
The Kansas Unit Cooperative Fish and Wildlife Research Unit determined that spotted bass have small home ranges, distinct movement patters, and extensively use woody debris and undercut bank habitats in pools. Thus, the Kansas Department of Wildlife and Parks is going to focus subsequent habitat-restoration efforts on these habitats.

The Kansas Cooperative Fish and Wildlife Research Unit described the population characteristics and determined the influence of exploitation and harvest regulations on yield, size structure, and egg production of shovelnose sturgeon from three sites in the Missouri River. Although shovelnose sturgeon are thought to be more resilient than other sturgeon species to exploitation, the results from this study suggested that shovelnose sturgeon are sensitive to low levels of exploitation. The Missouri Department of Conservation used these data to help assess the validity of closing the commercial harvest on shovelnose sturgeon in the Missouri River.

The Kansas Cooperative Fish and Wildlife Research Unit found that latitude and its thermal correlates strongly influence life history characteristics of fishes in the Missouri River. These data will be used by the Army Corps of Engineers to better understand the effects of hypolimnetic releases from reservoirs on fish population characteristics.

The Kansas Cooperative Fish and Wildlife Research Unit found that water temperature and discharge were critical to successful spawning of bighead carp in the lower Missouri River. The data from this study, funded by the US Army Corps of Engineers, provide critical information regarding the early life history of this invasive species.

The Kansas Cooperative Fish and Wildlife Research Unit studied the effects of light shock on short-term survival of walleye fry. The Kansas Department of Wildlife and Parks is using these data assess the walleye stocking program in Kansas.



Ecosystem Management

The Oregon Cooperative Fish & Wildlife Research Unit estimated abundance and described habitat associations of songbirds in four different vegetative types including grasslands, shrub-steppe, mid-seral juniper, and old-growth juniper. The Bureau of Land Management is using this information to maximize biological diversity of bird communities on their lands in the Great Basin.

The Montana Cooperative Wildlife Research Unit, with support from the USFWS, compared reproductive performance of a grassland songbird, the chestnut-collared longspur, in native mixed-grass prairie versus monotypic stands of exotic crested wheatgrass. Results from this project will help managers to understand the effects of invasion by exotic plants on demographic performance by native bird species.

The Montana Cooperative Wildlife Research Unit worked cooperatively with the Northern Prairie Wildlife Research Center and the USFWS to evaluated breeding populations, demographic performance, and habitat relationships of greater sandhill cranes at Grays Lake National Wildlife Refuge. These baseline data provide refuge managers guidance on best land management practices for cranes at the refuge.

The Wisconsin Cooperative Wildlife Research Unit reevaluated the contributions, both positive and negative, that forest edges contribute to the landscape and biodiversity. This information will be used by land and resource managers to clarify population status, and estimates of annual productivity in this region in the northern Midwest.

The Wisconsin Cooperative Wildlife Research Unit, while studying cowbirds, a species that lays its eggs in the nests of other birds and reduces their reproductive success, found that manipulation of livestock grazing practices can provide an effective tool to management cowbird parasitism in areas where cattle are present.

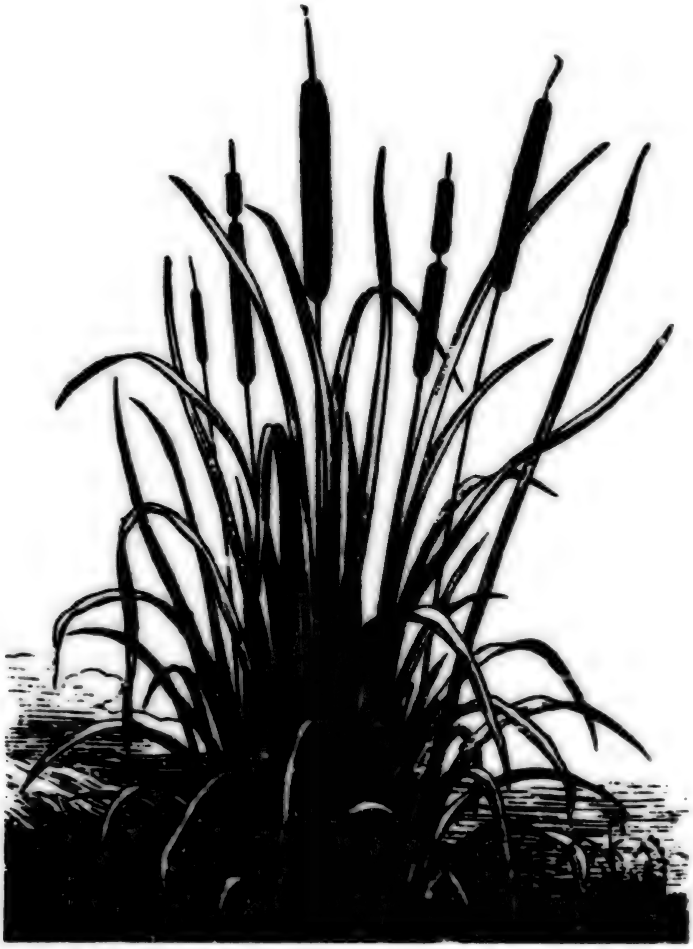
The Montana Cooperative Wildlife Research Unit identified the contributions that private lands make toward biodiversity in the State of Montana. This information is being used by the Conservation Fund, a non-government conservation organization, to recognize the contributions that private lands make to the state's fauna wildlife.

The New Mexico Cooperative Fish and Wildlife Research Unit identified a process for incorporating of landscapes into conservation planning models related to 400,000 ha of military lands on Fort Bliss Military Reservation. The report provided the context for placing the reservations properties into an ecological and land stewardship matrix extending beyond it's the lands owned and managed Fort Bliss Military Reservation. The Directorate of Environment at Fort Bliss uses this information as part of decision support for natural resource planning.

The Virginia Cooperative Fish and Wildlife Research Unit investigated the possible effects of herring gulls and great black-backed gulls on breeding piping plovers on South Monomoy Island, Cape Cod, Massachusetts. The research, conducted for the USFWS and the Biological Resources Division of USGS, found no impact of gulls on piping plover reproduction or survival. Piping plovers showed a preference for moist soil habitats. This information will be used in making management decisions for piping plovers along the east coast.

The Oregon Cooperative Fish & Wildlife Research Unit, funded by EPA and the National Science Foundation, assessed thermal patchiness and thermal profiles of streams in the Columbia River watershed. The main difference among the streams appears to be that the thermal signal rises more slowly downstream in the streams from watersheds that are in good condition. A greater proportion of the wilderness streams were suitable for endangered coldwater salmonids as was confirmed by field population censuses.

The Oregon Cooperative Fish & Wildlife Research Unit evaluated marine invaders on native estuarine benthic communities using qualitative mathematical analysis. This project, funded by Sea Grant, will help the Oregon Department of Fish and Wildlife determine the impacts of exotic invertebrates on Oregon's estuaries.



Animal Biodiversity, Surveys and Monitoring

The Arizona Cooperative Fish and Wildlife Research Unit evaluated the utility of call-broadcast surveys for increasing the detection probability of various marsh birds for the Biological Resources Division. Call-broadcast surveys increased detection probability of some focal marsh birds but decreased detection probability of non-focal marsh bird species. Additionally, temporal variation in detection probability was higher for call-broadcast surveys as compared to passive surveys. Results will help USGS and USFWS in development of continental marsh bird monitoring protocol.

The Oregon Cooperative Fish & Wildlife Research Unit examined the relationship of the abundance of introduced and native earthworm species for the U.S. Fish & Wildlife Service. The research compared soil and vegetative attributes associated with their abundance in five forest remnants within the Willamette Valley, Oregon.

The Montana Cooperative Wildlife Research Unit banded ducks at a remote site near Cumberland House, Saskatchewan in cooperation with The U. S. Fish and Wildlife Service. Recovery data of these banded ducks provides critical information on annual survival rates, harvest rates, migratory pathways, and geographic distribution of harvest used by many agencies for developing management plans and harvest regulations.

The New York Cooperative Fish & Wildlife Research Unit completed a two-year study of New York's state-listed special concern, or threatened grassland bird species including Henslow's sparrow and Grasshopper sparrow. Quantitative measurements of Henslow's Sparrow and Grasshopper Sparrow habitats were collected to make inference to state-wide distribution. This species-specific habitat information provides managers with the background to make informed decisions on how to balance land-use practices, while maintaining habitat for sensitive breeding bird species.

The Minnesota Cooperative Research Unit performed a comprehensive assessment of Northern goshawk abundance, distribution and nesting habitat within the Superior National Forest (SNF) for the U.S. Forest Service. The SNF is among the largest contiguous parcels of forested land in the Upper Midwest, and as such presents an opportunity for maintaining a viable population of goshawks in this region. The Forest Service is currently revising its management objectives, and results from this study are being incorporated into the Forest Plan for the SNF.

The Texas Cooperative Fish and Wildlife Research Unit evaluated relationships of swift foxes and coyotes in northwest Texas for Texas Parks and Wildlife. Coyotes were the largest cause of swift fox mortality and survival and dispersal rates of swift foxes increased when coyote densities were reduced. The agency is using this information to formulate management plans for both species.

The New Mexico Cooperative Fish and Wildlife Research Unit (thru the Government Department at New Mexico State University) analyzed stimuli and barriers to the use of New Mexico Gap Analysis data by county, tribal, and regional planners. Research conducted for the USGS National Gap Analysis Program and the Socioeconomic Seed Grant Program at the University of Idaho identified broadly based greater concern among these entities with economic development rather than environmental concerns. The research outcomes are used by National GAP to plan information dissemination processes and communicate more effectively with sympathetic planning programs.

The Montana Cooperative Wildlife Research Unit, cooperating with the Wildlife Spatial Analysis Lab at the University of Montana, mapped wolf habitat in Central Idaho for the Defenders of Wildlife. GIS analysis and mapping were used to identify sites in central Idaho and western Montana where conflict between wolf populations and livestock are least likely to occur. Maps using GIS data layers that included density of prey base, land ownership, terrain (elevation and slope) and numbers of livestock and their locations.

The New Mexico Cooperative Fish and Wildlife Research Unit completed research regarding New Mexico's component of the Southwest Regional Gap Analysis Project (SWReGAP) for the USGS National Gap Analysis Program. This work focused on long-term research development and facilitation of New Mexico providing regional animal modeling capabilities. National GAP used the information to organize a multi-year, 5-partner research project to conduct SwReGAP in Arizona, Colorado, Nevada, New Mexico, and Utah.

The Virginia Cooperative Fish & Wildlife Research Unit developed models to relate biodiversity to land-use practices for the natural resource managers at Quantico Marine Corps Base. Levels of wildlife biodiversity on the base were compatible with current activities and guidelines were developed for evaluating potential impacts of future management scenarios on the wildlife resource. The findings will contribute to more effective management of the natural resources on the base and allow for conservation of the existing biodiversity into the future.

The Mississippi Cooperative Fish & Wildlife Research Unit studied the role and importance of forest ecosystems in sustaining avian communities for the U.S. Fish and Wildlife Service. Landscape characteristics were compared to avian communities in a contiguous block of forest encompassed by the Noxubee National Wildlife Refuge and the Ackerman tract of Tombigbee National Forest. Several Federal agencies are using this information to better understand the potential effects that forest management practices may have on bird communities.

The Montana Cooperative Fishery Research Unit collected baseline data on distribution, relative abundance, and habitat associations of Milk River fishes in relation to irrigation diversions for the Bureau of Reclamation. Data will be used by state and federal agencies in future decisions related to further water development and for restoration of fish species.

The West Virginia Cooperative Fish & Wildlife Research Unit quantified abundance and richness of terrestrial nongame wildlife in reclaimed and unmined landscapes for the EPA and the EIS steering committee for mountaintop mining. This information is being used in an environmental impact assessment of the mountaintop mining process.

The West Virginia Cooperative Fish & Wildlife Research Unit developed baseline information on woodrat population size, extent, and habitat characteristics within the New River Gorge National River and Gauley River National Recreation Area for the National Park Service. NPS is using this information in developing strategies to conduct long-term monitoring of specific sites.

The New York Cooperative Fiah and Wildlife Research Unit (with cooperators from Syracuse University) conducted a telemetry study of Least Bitterns for the U.S. Fish and Wildlife Service. Radiotelemetry was used to locate nests, monitor nest success, obtain locations for home range and movement calculations, and determine post-fledging patterns. Additionally, broadcasting conspecific calls was an effective tool for monitoring least bittern population trends.

The Texas Cooperative Fish and Wildlife Research Unit developed a current inventory of plants and vertebrates in the six national parks of the Chihuahuan Desert Network for the National Park Service. A review of current data included archived collections and previously funded project reports incorporated into the study plan for the Inventory and Monitoring Program of the National Park Service.

The Missouri Cooperative Fish and Wildlife Research Unit assisted the National Gap Program and the Mexican biological research agency CONABIO in completion of a GAP analysis of habitats traversing the lower Rio Grande River. This effort will facilitate management and restoration of one of North America's most species-rich ecosystems.

The California Cooperative Fishery Research Unit determined the distribution of steelhead trout and other anadromous salmonids in Kings Range National Conservation Area. The information will assist the BLM in setting management goals for this wilderness area and the National Marine Fisheries Service in evaluating the status of steelhead relative to the Endangered Species Act.

The California Unit determined the distribution and abundance of western spotted frogs within the upper Klamath National Wildlife Refuge. Areas important for breeding by this species were also identified. Recommendations for altering grazing management that would protect frogs were made and have been adopted by USFWS.

The California Cooperative Fishery Unit completed surveys of breeding seabirds in California waters of the Pacific Ocean for the Biological Resources Division of USGS. Data gathered included baseline surveys of breeding seabirds and assessments of population change for selected species.

The California Cooperative Fishery Unit completed biotic surveys in the Cottonwood Lakes area of North Dakota for the Biological Resources Division. Surveys included the distribution plants, birds, amphibians, and aquatic macroinvertebrates. Information will be incorporated into GIS maps of the region.

Habitat Management and Restoration Ecology

The Kansas Cooperative Fish and Wildlife Research Unit that removing cattle, eliminating annual application of nitrogen fertilizer and implementing spring burning was an inexpensive way to restore grazed lands to native tallgrass prairie and enhance habitat for grassland birds. This study, funded by the Department of Defense, should provide State and federal agencies throughout the region with an effective restoration technique.

The South Dakota Cooperative Fish and Wildlife Research Unit worked with the South Dakota Department of Transportation to develope guidelines for creating wetlands beneficial to wildlife. The information will be used to mitigate wetlands losses resulting from highway construction in South Dakota.

The South Dakota Cooperative Fish and Wildlife Research Unit assisted the Fish and Wildlife Service by mapping remnant tracts of tallgrass prairie in eastern South Dakota. The maps will help agencies set priorities for grassland conservation.

The South Dakota Cooperative Fish and Wildlife Research Unit delineated and classified wetlands for the National Wetland Inventory being conducted by the Fish and Wildlife Service. The information revealed status and trends in wetland conservation for the decade of the 1990s, that allows the Federal government to assess the success of wetland programs.

The Wisconsin Cooperative Wildlife Research Unit evaluated the sensitivity or grassland birds to landscape level changes. This information will be used in planning for the conservation of grassland birds.

The Minnesota Cooperative Fish and Wildlife Research Unit, working with the USGS Northern Prairie Wildlife Research Center, addressed the effects of grazing on vegetation structure and bird population densities. Federal and state agencies will use this information in land management decisions.

The Texas Cooperative Fish and Wildlife Research Unit evaluated combinations of prescribed burning, mechanical manipulation, and herbicide treatments to manage yaupon holly for the Texas Parks and Wildlife Department. The state agency will use this information to help reduce the negative impacts of yaupon holly on post oak savannah habitats.

The South Carolina Cooperative Fish and Wildlife Research Unit completed environmental monitoring of the bottomland hardwood wetland mitigation site in the piedmont of South Carolina. A technical report, submitted to the South Carolina Ports Authority, will be forwarded to the Army Corps of Engineers. Restoration of the site was successful based on mitigation criteria.

The Montana Cooperative Wildlife Research Unit summarized the level of native prairie conversion in selected north-central Montana counties. This information is being used by the Fish and Wildlife Service and state agencies for conservation planning.

The Montana Cooperative Wildlife Research Unit, cooperating with the Wildlife Spatial Analysis Lab at the University of Montana, mapped land cover, canopy closure, and tree size class in eight Landsat TM scenes covering central Montana. The data will be used for land management planning by the Forest Service.

The Montana Cooperative Wildlife Research Unit, through the Wildlife Spatial Analysis Lab, provided a variety of remote sensing, GIS analysis, and digital mapping services to assist the USFS with strategic planning for risk management and fire rehabilitation throughout Region 1. This entailed identifying, prioritizing and updating areas at risk to fire across the Northern Region and providing quantitative assessment of the resources lost to fire in the Northern Region during the 2000 fire season.

The Montana Cooperative Wildlife Research Unit, cooperating with the Wildlife Spatial Analysis Lab at the University of Montana, provided a variety of remote sensing, GIS analysis, and digital mapping services to assist the Forest Service with strategic planning for risk management and fire rehabilitation in the Region.

The Virginia Cooperative Fish and Wildlife Research Unit derived vital statistics of the black bear population throughout the state of Virginia for the USFS and the state resource agency. Because management of black bears relies primarily on the manipulation of the timing and the length of the hunting season in Virginia, these data are imperative for effective management. Resulting population models to predict the impact of various perturbations on the black bear population in Virginia will assist in developing a state-wide bear management plan for Virginia.

The Missouri Cooperative Fish and Wildlife Research Unit completed a study on transitional wetland habitats along the Obion River in west Tennessee for the Wildlife Management Institute, Tennessee Wildlife Resources Agency, USFWS, and the EPA. Results suggest that channelization in the early 1900s resulted in wetter floodplain conditions causing extensive mortality of bottomland hardwood trees and eventual development of monotypic, emergent plant communities that lack structural complexity. Though some wildlife are abundant, species richness is low in these highly modified habitats. These findings will direct future management of the area.

The Oregon Cooperative Fish & Wildlife Research Unit determined that dykes and jettys in the Columbia River estuary constitute significant habitat for California brown pelicans several species of cormorants and Steller and California sea lions. The Army Corps of Engineers will incorporate this information into land use and conservation plans.

The Oregon Cooperative Fish & Wildlife Research Unit determined that Caspian terns can rapidly colonize alternative nesting sites consisting of an anchored barge and temporary barge colonies may help assess prospective colony restoration sites. The Fish and Wildlife Service and other federal and state agencies will evaluate this information for potential incorporation into management plans for estuaries where terns forage heavily on young salmonids.

The Mississippi Cooperative Fish and Wildlife Research Unit determined the movement, spawning, and recruitment of Gulf coast walleye in Luxapallila Creek, Mississippi. Walleye migrate over grade control structures installed in Luxapallila Creek to forestall channel incision resulting from downstream channelization. This information was provided to the US Army Corps of Engineers for use in watershed planning.

The Missouri Cooperative Fish and Wildlife Research Unit completed a study of the effects of flooding on the availability of waterfowl foods for the Missouri Department of Conservation (MDC) and Ducks Unlimited (DU) - Institute for Wetland and Waterfowl Research. Results indicate that energy values of natural foods are retained over the course of winter. Thus, by manipulating water levels during fall, managers can reduce depletion of foods by waterfowl and ensure that adequate energy resources are available for spring migrants. These findings will be incorporated into management plans for MDC and DU

The Missouri Cooperative Fish and Wildlife Research Unit completed a study of raccoon population demographics along an urban-rural gradient for the Max McGraw Wildlife Foundation and the University of Missouri Agricultural Experiment Station. Relative to the rural site, the urban site had greater captures and reproduction, but lower mortality. These findings will be useful for city planners in determining the impact of urban development on raccoon populations.

The South Dakota Cooperative Fish and wildlife Research Unit mapped remaining remnant tracts of tallgrass prairie in eastern South Dakota for the U. S. Fish and Wildlife Service. The maps will help USFWS and other federal agencies to set priorities for grassland conservation.

The South Dakota Cooperative Fish and Wildlife Research Unit delineated and classified wetlands in the National Wetland Inventory for the U. S. Fish and Wildlife Service. The information revealed status and trends of wetland conservation for the decade of the 1990s and allows USFWS to assess the success of wetland programs.

The North Carolina Cooperative Fish and Wildlife Research Unit, working with the North Carolina Wildlife Resources Commission, determined that removal of a low-head dam on the Neuse River restored important spawning habitat for striped bass and American shad. Both species migrated into the restored habitat, and the primary spawning grounds for American shad were located upstream of the former dam site. This information is being used in other river systems to assess the value of fish passage and dam removal.

Biometrics and Modeling

The Montana Cooperative Wildlife Research Unit, with support from Ducks Unlimited, investigated potential applications of adaptive management to conservation of waterfowl breeding habitat in the Prairie Pothole Region of the United States and Canada. The project represents an important step toward helping national and international decision makers to incorporate the best available information and optimize ecological benefits of conservation actions while minimizing costs.

The Georgia Cooperative Fish and Wildlife Research Unit completed a 3-year study on demographics of finches breeding in northeastern Spain. This work, conducted at the request of the North Atlantic Treaty (NATO) Organization, is being used to guide conservation and management of birds species in areas of high human population density in western Europe.

The North Carolina Cooperative Fish and Wildlife Research Unit adapted a removal model to directly estimate detection probability during point count surveys of song birds. The model, developed for the Biological Resources Division, assumes that singing frequency is a major factor influencing the probability of detection when birds are surveyed using point counts. Because point count surveys are the primary method used to monitor breeding bird populations in North America, the methods developed will have widespread use and significantly improve point count estimates.

The Oregon Cooperative Fish & Wildlife Research Unit evaluated the qualitative modeling approach by inviting scientists to model systems and communities to which they had conducted research. In general, most of the scientists were pleased with model outputs and found the qualitative approach useful, especially as a heuristic tool for research.

The North Carolina Cooperative Fish and Wildlife Research Unit completed a computer program to improve the process for selecting population models for mallard population dynamics. The USFWS will use this information to evaluate the effects of harvest on mallard populations, and thus improve the agency's ability to provide science-based harvest regulations.

Other

The New York Cooperative Fish and Wildlife Research Unit, in collaboration with the New York Endangered Species Unit, provided approximately 21,000 reported individual observations of reptiles and amphibians for use in completion of the Gap effort and a state atlasing project. The New York State Amphibian and Reptile Atlas Project has made great strides in characterizing and drawing attention to this important group. Current Gap Analysis research is adding to the effort to further delineate and display this rich heritage of amphibians and reptiles in New York.

The New York Cooperative Fish and Wildlife Research Unit completed the New York Gap Analysis Project (NY-GAP). NY-GAP is a preliminary step toward the more detailed studies and efforts needed for long-term conservation of biodiversity in NYS. Selected highlights of the final project report include: A statewide map of 29 land cover types was produced to support habitat modeling for NY-GAP; and distribution maps (predicted) for 366 terrestrial vertebrate species, including native and introduced species.

The Wisconsin Cooperative Wildlife Research Unit evaluated the implementation of the National Marine Debris Monitoring Program and the quality of the data collected by the program for the Environmental Protection Agency. The study identified data gaps and other survey problems, determined that no other items needed to be added to the indicator debris list, and that a revised sampling scheme would adequately detect a 30% change in indicator iitems.

The Texas Cooperative Fish and Wildlife Research Unit evaluated the impacts of scabies mites on desert bighorn sheep for the USFWS. Six radio-callared sentential rams were used to monitor health and determine if other desert bighorn sheep still inhabited the San Andres Mountains. During the monitoring period, sentinel rams did not acquire scabies and no other desert bighorn sheep were observed with the sentinel rams. USFWS will use this information to determine whether the San Andres Mountains or other sites provide suitable conditions for long-term survival and health of bighorn sheep.

The Montana Cooperative Fishery Research Unit evaluated the potential use of antibiotics for the prevention or control of whirling disease for the National Partnership on Management of Wild and Native Cold Water Fisheries. The antibiotics fumagillin and TNP-470 were not effective in the prevention or control of whirling disease in rainbow trout. Findings were important in directing research elsewhere in the search for control of whirling disease.

The Virginia Cooperative Fish and Wildlife Research Unit produced a half-hour video describing the role of riparian corridors and stream bank stability on the terrestrial and aquatic wildlife in this buffer zone and in streams. Video focused on the role of streamside vegetation in providing shade, cover, and improved water quality for freshwater organisms and will educate riparian landowners on the importance of riparian corridors along streams and hopefully promote best management practices to protect streams. One thousand copies were produced for the USFWS to distribute to natural resource agencies, extension agents, and school systems in the southeastern U.S.

The Utah Cooperative Fish and Wildlife Research Unit studied the first year survival of young desert tortoises at the Marine Corps Air Ground Combat Center (MCAGCC) at Twentynine Palms, California from 1997-2000. Findings were submitted to MCAGCC for the management of their tortoise population.

STAFF

Cooperative Research Units National Headquarters

USGS - Cooperative Research Units Program
12201 Sunrise Valley Drive
MS303
Reston, VA 20192

phone: (703) 648-4260
fax: (703) 648-4269

Byron Ken Wiiliams	Chief	*Byron_Ken_Williams@usgs.gov*
Jim Fleming	Deputy Chief	*Jim_Fleming@usgs.gov*
Shari Weant	Admin. Officer	*sweant@usgs.gov*
Shannon Fennell	Admin. Assistant	*Shannon_Fennell@usgs.gov*
Don Dennerline	Biologist	*Don_Dennerline@usgs.gov*
Kim Soto	Admin. Ops. Assistant	*Kim_Soto@usgs.gov*
Vivian Mundey	Admin. Ops. Assistant	*Vivian_Mundey@usgs.gov*
Brenda Croston	Admin. Ops. Assistant	*Brenda_Croston@usgs.gov*
Melissa Gruber	Admin. Ops. Assistant	*Melissa_Gruber@usgs.gov*
Terry Linton	Secretary	*Tlinton@usgs.gov*

Mid-continent Supervisor Cooperative Research Units

US Fish and Wildlife Service
P.O. Box 25486
Denver Federal Center
Denver, CO 80225

phone: (303) 236-4816
fax: (303) 236-7982
email: *Lynn_Haines@usgs.gov*

Lynn Haines	Supervisor

Includes Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana Wildlife, Montana Fish, New Mexico, Oregon, South Dakota, Utah, Washington, Wyoming

Eastern Supervisor Cooperative Research Units

USGS - BRD
Leetown Science Center
1700 Leetown Road
Kearneysville, WV 25430

phone: (304) 724-4411
fax: (304) 724-4415

Mike Tome	Supervisor	*Mike_Tome@usgs.gov*

Includes Alaska, Iowa, Massachusetts, Maryland, Maine, Minnesota, New York, Pennsylvania, Vermont, Virginia, Wisconsin Wildlife, Wisconsin Fish, West Virginia

Southern Supervisor Cooperative Research Units

Cooperative Research Units
Suite 200
1875 Century Boulevard
Atlanta, GA 30345

phone: (404) 679-7091
fax: (404) 679-7081

Mike Van Den Avyle	Supervisor	*Mike_Vandenavyle@usgs.gov*

Includes Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas

Alabama Cooperative Fish and Wildlife Research Unit

108 White Smith Hall
Auburn University
Auburn, AL 36849-5418

phone: (334) 844-4796
fax: (334) 887-4509
email: coop-unit@auburn.edu

J. Berry Grand	Unit Leader	*bgrand@acesag.auburn.edu*
Mike Mitchell	AUL - Wildlife	*mmitchel@acesag.auburn.edu*
Elise R. Irwin	AUL - Fish	*eirwin@acesag.auburn.edu*

Alaska Cooperative Fish and Wildlife Research Unit

University of Alaska Fairbanks
209 Irving I Building
P.O. Box 757020
Fairbanks, AK 99775-7020

phone: (907) 474-7661
fax: (907) 474-6716
email: fyunit@uaf.edu

F. Joseph Margraf	Unit Leader	*ffjfm1@uaf.edu*
Brad Griffith	AUL - Wildlife	*ffdbg@uaf.edu*
Abby Powell	AUL - Wildlife	*ffanp@aurora.alaska.edu*
A. David McGuire	AUL - Ecology	*ffadm@uaf.edu*
Vacant	AUL - Fish	

Arizona Cooperative Fish and Wildlife Research Unit

104 Biological Sciences East Building
University of Arizona
Tucson, AZ 85721-0001

phone: (520) 621-1959
fax: (520) 621-8801
email: azcoopunit@ag.arizona.edu

Scott Bonar	AUL - Fish	*sbonar@ag.arizona.edu*
Courtney Conway	AUL - Wildlife	*cconway@ag.arizona.edu*
Vacant	AUL - Fish	

Arkansas Cooperative Fish and Wildlife Research Unit

Biological Sciences
WAAX-203
University of Arkansas
Fayetteville, AR 72701-1201

phone: (479) 575-6709
fax: (479) 575-3330
email: coopunit@comp.uark.edu

David G. Krementz	Unit Leader	*krementz@uark.edu*
William Thompson	AUL - Wildlife	*thompson@uark.edu*
Daniel Magoulick	AUL - Fish	*danmag@uark.edu*

California Cooperative Fishery Research Unit

Humboldt State University
1 Harpst Street
Arcata, CA 95521-8299

phone: (707) 826-3268
fax: (707) 826-3269
email: cuca@humboldt.edu

Walter Duffy	Unit Leader	*wgd7001@axe.humboldt.edu*
Margaret (Peggy) Wilzbach	AUL	*paw7002@axe.humboldt.edu*

Colorado Cooperative Fish and Wildlife Research Unit

201 J.V.K. Wagar Building
Colorado State University
Fort Collins, CO 80523-1484

phone: (970) 491-5396
fax: (970) 491-1413
email: coopunit@cnr.colostate.edu

David R. Anderson	Unit Leader	*anderson@cnr.colostate.edu*
Kenneth P. Burnham	AUL - Wildlife	*kenb@lamar.colostate.edu*
Eric P. Bergersen	AUL - Fish	*ericb@cnr.colostate.edu*

Florida Cooperative Fish and Wildlife Research Unit

University of Florida
Box 110450
Gainesville, FL 32611-0450

phone: (352) 392-1861
fax: (352) 846-0841
email: coop@wec.ufl.edu

H. Franklin Percival	Unit Leader	*percivalf@wec.ufl.edu*
Wiley Kitchens	Research Ecologist	*kitchensw@wec.ufl.edu*
Raymond Carthy	AUL - Wildlife	*rayc@zoo.ufl.edu*

Georgia Cooperative Fish and Wildlife Research Unit

DB Warnell School of Forest Resources
University of Georgia
Athens, GA 30602-2152

phone: (706) 542-5260
fax: (706) 542-8356
email: coopunit@smokey.forestry.uga.edu

Cecil A. Jennings	Unit Leader	*jennings@arches.uga.edu*
Michael J. Conroy	AUL - Wildlife	*conroy@arches.uga.edu*
Jim Peterson	AUL - Fish	*peterson@smokey.forestry.uga.edu*

Hawaii Cooperative Fishery Research Unit

2538 The Mall
University of Hawaii
Honolulu, HI 96822-2279

phone: (808) 956-8350
fax: (808) 956-4238
email: hcfru-l@hawaii.edu

James D. Parrish	Unit Leader	*parrishj@hawaii.edu*
Charles Birkeland	AUL	*charlesb@hawaii.edu*

Idaho Cooperative Fish and Wildlife Research Unit

College of Natural Resources
P O Box 441141
Moscow, ID 83844-1141

phone: (208) 885-6336
fax: (208) 885-9080
email: idcfwru@uidaho.edu

J. Michael Scott	Unit Leader	*mscott@uidaho.edu*
R. Gerald Wright Jr.	Research Biologist	*gwright@uidaho.edu*
James Congleton	AUL - Fish	*jconglet@uidaho.edu*
Vacant	AUL - Fish	

Iowa Cooperative Fish and Wildlife Research Unit

11 Science Hall II, Animal Ecology Dept.
Iowa State University
Ames, IA 50011-3221

phone: (515) 294-3056
fax: (515) 294-5468
email: coopunit@iastate.edu

David Otis	Unit Leader	*dotis@iastate.edu*
Rolf R. Koford	AUL - Wildlife	*rkoford@iastate.edu*
Clay Pierce	AUL - Fish	*cpierce@iastate.edu*

Kansas Cooperative Fish and Wildlife Research Unit

205 Leasure Hall
Kansas State University
Manhattan, KS 66506-3501

phone: (785) 532-6070
fax: (785) 532-7159
email: kscfwru@ksu.edu

Philip S. Gipson	Unit Leader	*gipson@ksu.edu*
Jack F. Cully Jr.	AUL - Wildlife	*bcully@ksu.edu*
Christopher S. Guy	AUL - Fish	*chrisgy@ksu.edu*

Louisiana Cooperative Fish and Wildlife Research Unit

School of Forestry, Wildlife, and Fisheries
124 Forestry-Wildlife-Fisheries Building
Louisiana State University
Baton Rouge, LA 70803-6202

phone: (225) 578-4179
fax: (225) 578-4144
email: lacoop@lsu.edu

C. Frederick Bryan	Unit Leader	*cbryan@lsu.edu*
Alan D. Afton	AUL - Wildlife	*aafton@lsu.edu*
Megan K. G. La Peyre	AUL - Fish	*mlapey@lsu.edu*
Vacant	AUL	

Maine Cooperative Fish and Wildlife Research Unit

5755 Nutting Hall, Room 258
University of Maine
Orono, ME 04469-5755

phone: (207) 581-2870
fax: (207) 581-2858
email: usgs@umenfa.maine.edu

William B. Krohn	Unit Leader	*wkrohn@umenfa.maine.edu*
Cynthia Loftin	AUL - Wildlife	*cyndy_loftin@umenfa.maine.edu*
John R. Moring	AUL - Fish	*jmoring@maine.maine.edu*

Maryland Cooperative Fish and Wildlife Research Unit

University of Maryland Eastern Shore
Trigg Hall, Room 1120
Princess Anne, MD 21853-1299

phone: (410) 651-7663
fax: (410) 651-7662
email: mdcoopunit@mail.umes.edu

James Wiley	Unit Leader	*jwwiley@mail.umes.edu*
Dixie Bounds	AUL - Wildlife	*dlbounds@mail.umes.edu*
Steven G. Hughes	AUL - Fish	*sghughes@mail.umes.edu*

Massachusetts Cooperative Fish and Wildlife Research Unit

Holdsworth Natural Research Center
University of Massachusetts
Box 34220
Amherst, MA 01003-4220

phone: (413) 545-4889
fax: (413) 545-4358
email: macoopunit@forwild.umass.edu

Stephen DeStefano	Unit Leader	*sdestef@forwild.umass.edu*
Paul Sievert	AUL - Wildlife	*psievert@forwild.umass.edu*
Martha E. Mather	AUL - Fish	*mather@forwild.umass.edu*

Minnesota Cooperative Fish and Wildlife Research Unit

Department of Fisheries and Wildlife
University of Minnesota
200 Hodson Hall, 1980 Folwell Avenue
St. Paul, MN 55108-6124

phone: (612) 624-3421
fax: (612) 625-5299
email: mncfwru@fw.umn.edu

David E. Andersen	Unit Leader	*dea@fw.umn.edu*
David C. Fulton	AUL - Wildlife	*dcf@fw.umn.edu*
Bruce Vondracek	AUL - Fish	*bcv@fw.umn.edu*

Mississippi Cooperative Fish and Wildlife Research Unit

Mail Stop 9691
Mississippi State, MS 39762

phone: (662) 325-2643
fax: (662) 325-8726
email: mscoopunit@cfr.msstate.edu

Harold (Hal) Schramm	Unit Leader	*hschramm@cfr.msstate.edu*
Francisco Vilella	AUL - Wildlife	*fvilella@cfr.msstate.edu*
L. Esteban (Steve) Miranda	AUL - Fish	*smiranda@cfr.msstate.edu*

Missouri Cooperative Fish and Wildlife Research Unit

302 Anheuser-Busch Natural Resources
Building
University of Missouri
Columbia, MO 65211-7240

phone: (573) 882-3634
fax: (573) 884-5070
email: coopunit@missouri.edu

Charles F. Rabeni	Unit Leader	*RabeniC@missouri.edu*
Ronald D. Drobney	AUL - Wildlife	*DrobneyR@missouri.edu*
David L. Galat	AUL - Fish	*GalatD@missouri.edu*

Montana Cooperative Fishery Research Unit

Room 301 D Lewis Hall
P.O. Box 173460
Montana State University
Bozeman, MT 59717-3460

phone: (406) 994-4549
fax: (406) 994-7479
email: mtfcoopunit@montana.edu

Alexander V. Zale	Unit Leader	*zale@montana.edu*
Vacant	AUL	

Montana Cooperative Wildlife Research Unit

Botany Building 205
University of Montana
Missoula, MT 59812-1120

phone: (406) 243-5372
fax: (406) 243-6064
email: coopunit@selway.umt.edu

Joseph Ball	Unit Leader	*ball1@selway.umt.edu*
Thomas E. Martin	AUL	*tmartin@selway.umt.edu*

New Mexico Cooperative Fish and Wildlife Research Unit

Department of Fishery and Wildlife Sciences
P. O. Box 30003, MSC 4901
New Mexico State University
Las Cruces, NM 88003-0003

phone: (505) 646-6053
fax: (505) 646-1281
email: coopunit@nmsu.edu

Bruce C. Thompson	Unit Leader	*bthompso@nmsu.edu*
Louis Bender	AUL - Wildlife	*lbender@nmsu.edu*
Colleen A. Caldwell	AUL - Fish	*ccaldwel@nmsu.edu*

New York Cooperative Fish and Wildlife Research Unit

Fernow Hall, Room 202
Cornell University
Ithaca, NY 14853-3001

phone: (607) 255-2839
fax: (607) 255-1895
email: dnrcru-mailbox@cornell.edu

Milo E. Richmond	Unit Leader	*mer6@cornell.edu*
Richard A. Malecki	AUL - Wildlife	*ram26@cornell.edu*
Mark B. Bain	AUL - Fish	*mbb1@cornell.edu*

North Carolina Cooperative Fish and Wildlife Research Unit

Campus Box 7617
North Carolina State University
Raleigh, NC 27695-7617

phone: (919) 515-2631
fax: (919) 515-4454
email: nc_cfwru@ncsu.edu

Thomas J. Kwak	Unit Leader	*tkwak@ncsu.edu*
Theodore R. Simons	Ecologist	*tsimons@ncsu.edu*
Jaime A. Collazo	AUL - Wildlife	*jaime_collazo@ncsu.edu*
Joseph E. Hightower	AUL - Fish	*jhightower@ncsu.edu*

Oklahoma Cooperative Fish and Wildlife Research Unit

404 Life Sciences West
Oklahoma State University
Stillwater, OK 74078-3051

phone: (405) 744-6342
fax: (405) 744-5006
email: coopunit@okstate.edu

David M. (Chip) Leslie Jr.	Unit Leader	*r8cuok@usgs.gov*
Dana Winkelman	AUL - Fish	*danaw@okstate.edu*
William L. Fisher	AUL - Ecology	*wfisher@okstate.edu*

Oregon Cooperative Fish and Wildlife Research Unit

104 Nash Hall
Oregon State University
Corvallis, OR 97331-3803

phone: (541) 737-1938
fax: (541) 737-3590
email: or_cfwru@orst.edu

Robert G. Anthony	Unit Leader - Wildlife	*robert.anthony@orst.edu*
Carl B. Schreck	Unit Leader - Fish	*carl.schreck@orst.edu*
Daniel D. Roby	AUL - Wildlife	*robyd@ucs.orst.edu*
Hiram W. Li	AUL - Fish	*hiram.li@orst.edu*

Pennsylvania Cooperative Fish and Wildlife Research Unit

113 Merkle Building
Pennsylvania State University
University Park, PA 16802-1100

phone: (814) 865-4511
fax: (814) 863-4710
email: l-coopunit@lists.psu.edu

Robert F. Carline	Unit Leader	*f7u@psu.edu*
Duane R. Diefenbach	AUL - Wildlife	*drd11@psu.edu*
Erin Snyder	AUL - Fish	*ems19@psu.edu*

South Carolina Cooperative Fish and Wildlife Research Unit

G-27 Lehotsky Hall
Department of Aquaculture, Fisheries and Wildlife
Clemson, SC 29634-0372

phone: (864) 656-0168
fax: (864) 656-1034
email: SCCOOP-L@clemson.edu

Craig Allen	Unit Leader	*allencr@clemson.edu*
Vacant	AUL - Wildlife	
J. Jeffrey Isely	AUL - Fish	*jisely@clemson.edu*

South Dakota Cooperative Fish and Wildlife Research Unit

Department of Wildlife and Fisheries Sciences
South Dakota State University
Brookings, SD 57007-1696

phone: (605) 688-6121
fax: (605) 688-4515
email: sdsu_usgs_users@sdstate.edu

Charles R. Berry	Unit Leader	*charles_berry@sdstate.edu*
Kenneth F. Higgins	AUL - Wildlife	*terri_symens@sdstate.edu*
Steven R. Chipps	AUL - Fish	*steve_chipps@sdstate.edu*

Tennessee Cooperative Fishery Research Unit

Box 5114
Tennessee Tech University
Cookeville, TN 38505-0001

phone: (931) 372-3094
fax: (931) 372-6257
email: coopunit@tntech.edu

James B. Layzer	Unit Leader	*jim_layzer@tntech.edu*
Phillip W. Bettoli	AUL	*pbettoli@tntech.edu*

Texas Cooperative Fish and Wildlife Research Unit

c/o Texas Tech University
15th Street & Boston
Ag Science Bldg., Room 218
Lubbock, TX 79409-2120

phone: (806) 742-2851
fax: (806) 742-2946
email: txcoop@hobbes.tcru.ttu.edu

Nick C. Parker	Unit Leader	*nparker@ttu.edu*
Clint Boal	AUL - Wildlife	*cboal@ttacs.ttu.edu*
Reynaldo Patino	AUL - Fish	*r.patino@ttu.edu*

Utah Cooperative Fish and Wildlife Research Unit

Utah State University
Logan, UT 84322-5290

phone: (435) 797-2467
fax: (435) 797-1871
email: utcoop@cnr.usu.edu

John A. Bissonette	Unit Leader	*john.bissonette@cnr.usu.edu*
Thomas C. Edwards	AUL - Wildlife	*tce@nr.usu.edu*
Phaedra Budy	AUL - Fish	*phaedra.budy@cnr.usu.edu*

Vermont Cooperative Fish and Wildlife Research Unit

School of Natural Resources
University of Vermont, Aiken Center
Burlington, VT 05405

phone: (802) 656-3011
fax: (802) 656-8683
email: vtcfwru@uvm.edu

Donna L. Parrish	Unit Leader	*dparrish@nature.snr.uvm.edu*
Therese (Terri) Donovan	AUL - Wildlife	*tdonovan@nature.snr.uvm.edu*
Vacant	AUL - Fish	

Virginia Cooperative Fish and Wildlife Research Unit

106 Cheatham Hall
Virginia Polytechnic Institute and State
University
Blacksburg, VA 24061-

phone: (540) 231-4934
fax: (540) 231-7580
email: vacfwru@listserve.vt.edu

Richard J. Neves	Unit Leader	*mussel@vt.edu*
Michael R. Vaughan	AUL - Wildlife	*mvaughan@vt.edu*
Paul L. Angermeier	AUL - Fish	*biota@vt.edu*

Washington Cooperative Fish and Wildlife Research Unit

Fishery Sciences Building
Box 355020
University of Washington
Seattle, WA 98195-5020

phone: (206) 543-6475
fax: (206) 616-9012
email: washcoop@u.washington.edu

Christian E. Grue	Unit Leader	*cgrue@u.washington.edu*
Glenn R. VanBlaricom	AUL - Wildlife	*glennvb@u.washington.edu*
David Beauchamp	AUL - Fish	*daveb@u.washington.edu*

West Virginia Cooperative Fish and Wildlife Research Unit

Division of Forestry - College of Agriculture and Forestry
P. O. Box 6125, 322 Percival Hall
Morgantown, WV 26506-6125

phone: (304) 293-3794
fax: (304) 293-4826
email: wvcoop@wvu.edu

Patricia Mazik	Unit Leader	*pmazik@wvu.edu*
Petra B. Wood	AUL - Wildlife	*pbwood@wvu.edu*
Stuart Welsh	AUL - Fish	*swelsh@wvu.edu*

Wisconsin Cooperative Fishery Research Unit

College of Natural Resources
University of Wisconsin

Stevens Point, WI 54481-3897

phone: (715) 346-2178
fax: (715) 346-3624
email: coopfish@uwsp.edu

Michael Bozek	Unit Leader	*mbozek@uwsp.edu*
Vacant	AUL	

Wisconsin Cooperative Wildlife Research Unit

University of Wisconsin - Department of Wildlife
Ecology
Room 204 Russell Laboratories
Madison, WI 53706-1598

phone: (608) 263-4519
fax: (608) 263-4519
email: coopunit@uwmadmail.services.wisc.edu

Christine Ribic	Unit Leader	*caribic@facstaff.wisc.edu*
Vacant	AUL	

Wyoming Cooperative Fish and Wildlife Research Unit

Box 3166
Biological Science Building, Room 419
University of Wyoming
Laramie, WY 82071-3166

phone: (307) 766-5415
fax: (307) 766-5400
email: wyo-coop@uwyo.edu

Stanley H. Anderson	Unit Leader	*anderson@uwyo.edu*
Fred G. Lindzey	AUL - Wildlife	*flindzey@uwyo.edu*
Wayne A Hubert	AUL - Fish	*whubert@uwyo.edu*

PROGRAM STATISTICS

Table 1. Percentage of Cooperative Research Unit projects by selected categories.

	Aquatic	Terrestrial	Integrated	Species specific	Total
USGS-Biological Resources Division	29	27	17	27	100
Other Agencies	27	32	15	26	100
Other	37	23	10	29	100
Combined Total	31	28	14	27	100

Table 2. Number of projects sorted by agencies, organizations, and other entities contracting for research services.

Agency or organization	Number	Agency or organization	Number
USGS-Biological Resources Division	230	Native American agency	3
Bureau of Land Management	20	Non-governmental Conservation Org.	23
Bureau of Reclamation	8	Other	24
City or County Government	3	Private Industry or Organization	27
Department of Defense	33	State Agencies	404
Department of Energy	6	U.S. Army Corps of Engineers	34
Foreign Government or University	2	U.S.D.A. (other than Forest Service)	11
National Fish and Wildlife Foundation	8	U.S. Environmental Protection Agency	17
National Marine Fisheries Service	7	U.S. Fish and Wildlife Service	197
National Oceanic and Atmospheric Admin.	13	U.S. Forest Service	44
National Park Service	43	U.S. University	25
National Science Foundation	9		

Table 3. Number of publications and presentations of professional papers with co-authorship by Federal Unit staff or by others affiliated with a Unit.

Author / coauthor	Journals, books & symposia[1]	Technical & semi-technical	Papers presented[2]
Federal Unit Staff	260	144	600
Non-federal unit staff and students	64	38	212
Total[3]	306	164	712

[1] Includes only symposia with recognized publication series.

[2] Does not include lectures provided as part of seminar series at universities.

[3] Total represents number of unique publications and presentations and does not equal sums of rows due to co-authorship.

In the following Tables, Unit students are students who have federal Unit staff as a major advisor(s); whereas, Affiliated students are students who have financial or other close ties to a Unit, but do not have federal Unit staff as a major advisor(s).

Table 4. Number of graduate students and postdoctoral appointees participating in the Cooperatve Research Unit Program by minority status, gender and degree concentration.

	Unit Students				Affiliated Students			
Minority Status / Gender	Aquatic	Terrestrial	Integrated	Total	Aquatic	Terrestrial	Integrated	Total
Masters								
Non-minority male	115	59	25	199	27	29	6	62
Non-minority female	52	50	30	132	4	22	4	30
Minority male	14	1	7	23	0	3	2	5
Minority female	9	9	7	25	0	4	1	5
Subtotal	195	135	69	412	34	63	31	127
Doctoral								
Non-minority male	24	33	16	73	6	13	5	24
Non-minority female	15	17	8	40	2	7	5	14
Minority male	7	1	2	10	1	1	1	3
Minority female	2	5	2	9	1	0	1	2
Subtotal	53	59	29	145	11	23	12	54
Postdoctoral								
Non-minority male	1	1	2	4	0	2	0	2
Non-minority female	0	0	0	0	0	0	0	0
Minority male	3	0	0	3	0	1	0	1
Minority female	2	0	0	2	0	0	0	0
Subtotal	6	1	2	9	0	3	0	3
Total	258	195	101	572	46	89	26	186

In some cases, missing data for a given student (i.e. gender, field of study, etc.) prevented placement in individual cells or subtotals, thus the sum of cells may not equal the subtotal. For example, the total number of Unit Students (572) equals 554 students (258 + 195 + 101) whose field of study was known and 18 students whose field of study was unknown

Table 5. Number of degrees granted to graduate students participating in the Cooperative Research Unit Program by minority status, gender and degree.

	Unit Students			Affiliated Students		
Minority Status / Gender	Masters	Doctoral	Total	Masters	Doctoral	Total
Non-minority male	42	9	51	11	1	12
Non-minority female	21	1	22	3	2	5
Minority male	3	3	6	0	0	0
Minority female	5	1	6	0	0	0
Total	73	14	87	14	4	18

Table 6. Number of students supported by cooperative education agreements and source of support in fiscal year 1999.

	BRD support			Other support		
Minority Status / Gender	Masters	Doctoral	Total	Masters	Doctoral	Total
Non-minority male	0	0	0	4	0	4
Non-minority female	1	0	1	9	1	10
Minority male	0	0	0	2	0	2
Minority female	3	1	4	3	0	3
Totals	4	1	5	18	1	19

Table 7. Number of Cooperative Research Unit graduate students hired by individual agencies or organizations after completing their degrees in fiscal year 2000.

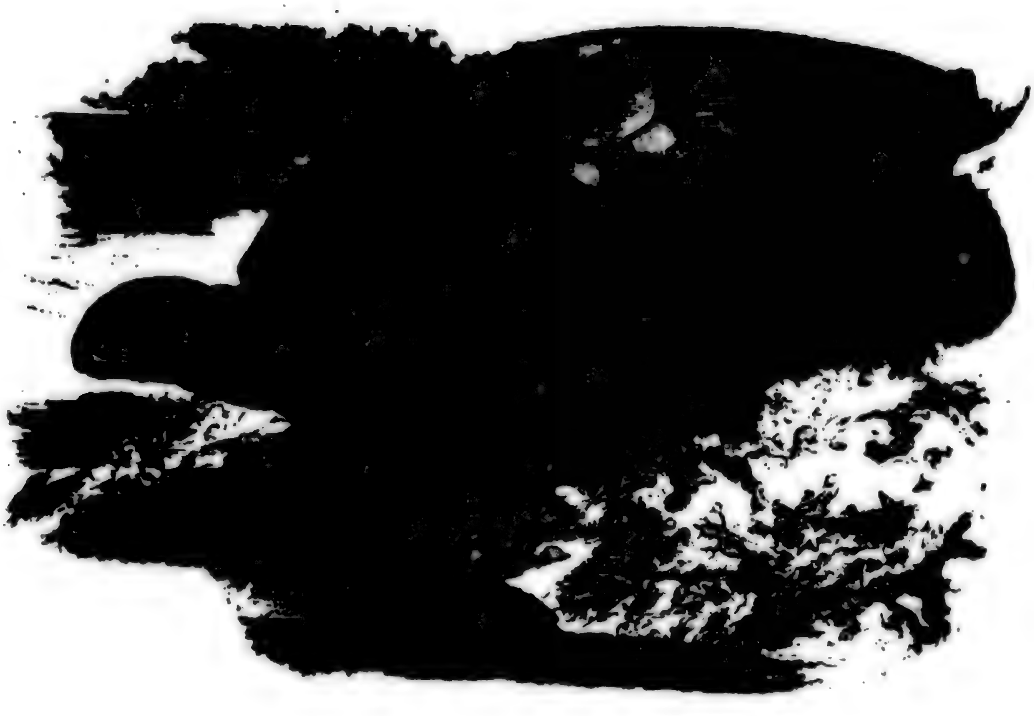
Agency or organization	Masters	Doctoral	Total
Biological Resources Division	0	0	0
U.S. Fish and Wildlife Service	11	0	11
Bureau of Land Management	1	0	1
National Park Service	0	0	0
U.S. Forest Service	0	0	0
National Science Foundation	0	0	0
Other Federal Agency	4	0	4
State Agency	19	3	22
Non-governmental Conservation Organization	2	2	4
Native American Agency	1	0	1
Foreign Government	1	0	1
Private Industry	5	1	6
University	15	7	22
Education Continued	3	0	3
Peace Corps	0	0	0
Miscellaneous	5	0	5
Unemployed	0	0	0
Unknown	6	1	7
Total	73	14	87

Table 8. Services and activities provided by federal Unit staff.

Services and activities provided	Number
Professional societies, boards, committees or similar groups	
Memberships in professional societies	324
Officer or other major position on committees, panels, boards, or similar groups	39
Memberships on committees, panels, boards or similar groups	78
Papers reviewed	558
Major proposals reviewed	541
Major planning documents reviewed	45
Exchanges or short courses attended	61
Workshop and extension activities	
Symposia Conducted	8
Workshops conducted	22
Training sessions or short courses conducted	21
Memberships on commisions	3
Memberships on public panels	6
Memberships on task forces	13
Memberships on recovery teams	6
Memberships in other groups	80
Congressional or legislative hearings	1
Research grade evaluation panel	5
Number of guest lectures in university classes	112
Public Lectures	14
Television programs	3
Radio programs	3
Films	0
Home page development	1
Extension publications	6
Newspaper releases	22
Other	11

Table 9. University teaching assignments and classroom lectures by Federal Unit staff.

	Semester system	Quarter system
Number of classes taught	127	12
Number of credit hours taught	428	25



HONORS AND AWARDS:

Anderson, D; Outstanding Monograph, The Wildlife Society.

Anderson, S; 2001 Conservation Award, Murie Audubon Society.

Bissonette, J; Bissonette, J. A., Senior Fulbright Scholarship-Germany Jan-June 2002, Council for the International Exchange of Scholars.

Bjornn, T; University of Idaho Alumni Hall of Fame, University of Idaho.

Bounds, D; National Cooperative Research Units (CRU) Service Award, U S Geological Survey.

Brisby, K; Administrative Excellence, Wildlife Management Institute.

Carden, K; Symposium Travel Grant, North American Lakes Management Society.

Catalano, M; Bill Beck Memorial Scholarship, Central Wisconsin Chapter of Trout Unlimited.

Chalfoun, A; EPSCOR Fellowship, National Science Foundation.

Chipps, S; STAR Award, USGS.

Drobney, R; Promoted to full Professor, University of Missouri.

Drobney, R; Gold Chalk Outstanding Teaching Award, University of Missouri.

Drobney, R; Faculty Outstanding Performance Award, University of Missouri.

Drobney, R; Elected President, Graduate Faculty Senate, University of Missouri.

Edwards, T; The Wildlife Society 2001 Wildlife Publications Award - Outstanding Book Category, The Wildlife Society.

Grand, J; Star Award, USDI, US Geological Survey.

Krementz, D; STAR award, Cooperative Fish & Wildlife Research Units.

Kwak, T; Don Baker Memorial Award for Best Presentation, 2000, at the Annual Meeting of the North Carolina Chapter of the American Fisheries Society, American Fisheries Society.

Lloyd, J; Marcia Brady Tucker Award, American Ornithologists' Union .

Margraf, F; Distinguished Service Award, American Fisheries Society.

Newbrey, M; Worth Scholarship, Worth Company.

Patino, R; Outstanding Fisheries Researcher of the Year, Texas Chapter, American Fisheries Society.

Percival, H; STAR Award, USGS-BRD.

Pierce, C; Best Student Poster Award, American Fisheries Society.

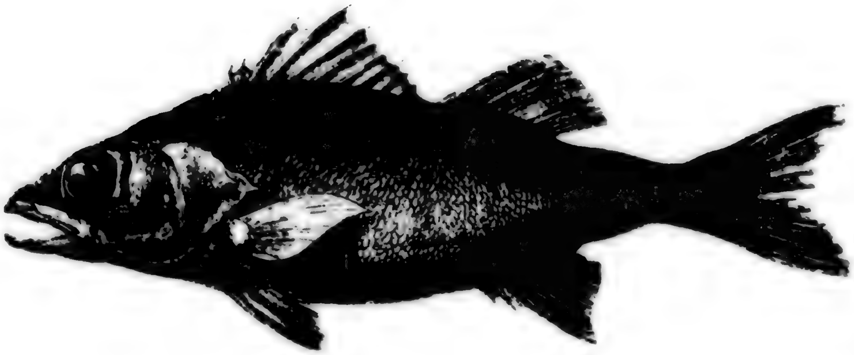
Saunders, R; Worth Scholarship, Worth Company.

Schramm, H; Excellence in Public Outreach Award, American Fisheries Society.

Simons, T; David H. Smith Conservation Research Fellowship. Awarded to Sarah E. Mabey for a 2 year Post-doc under the direction of Ted Simons, The Nature Conservancy.

Van Beek, B; Administrative Excellence Award, Wildlife Management Institute.

Vondracek, B; Honorable Mention (poster), American Fisheries Society.



PUBLICATIONS

Scientific Publications of Federal Unit Staff

Allen, C. R. 2001. Ecosystems and immune systems: hierarchical response provides resilience against invasions. Conservation Ecology 5(1): 15. [online] URL: http://www.consecol.org/vol5/iss1/art15 .

Allen, C. R., E. A. Forys, K. G. Rice, and D. P. Wojcik. 2001. Effects of fire ants on hatching turtles and prevalence of fire ants on sea turtle nesting beaches in Florida. Florida Entomologist 84:250-253. .

Allen, C. R., L. G. Pearlstine, D. P. Wojcik, and W. M. Kitchens. 2001. The spatial distribution of diversity between disparate taxa: spatial correspondence between mammals and ants. Landscape Ecology: 453-464. .

Allen, C. R., L. G. Pearlstine, and W. M. Kitchens. 2001. Modeling viable mammal populations in gap analyses. Biological Conservation 99:135-144. .

Allen, M.S., and L.E. Miranda. 2001. Quasi-cycles in crappie populations are forced by interactions among population characteristics and environment. Canadian Journal of Fisheries and Aquatic Sciences 58:594-601..

Anderson, D. A., K. P. Burnham, and W. L. Thompson. 2000. Null hypothesis testing: problems, prevalence, and an alternative. Journal of Wildlife Management 64:912-923..

Anderson, D. R., K. P. Burnham, B. C. Lubow, L. Thomas, P. S. Corn, P. A. Medica, and R. W. Marlow. 2001. Field trials of line transect methods applied to estimation of desert tortoise abundance. Journal of Wildlife Management 65:583-597..

Anderson, D. R., K. P. Burnham, G. W. Gould, and S. Cherry. 2001. Concerns about finding effects that are actually spurious. Wildlife Society Bulletin 29:311-316..

Anderson, D. R., W. A. Link, D. H. Johnson, and K. P. Burnham. 2001. Suggestions for presenting the results of data analyses. Journal of Wildlife Management 65:373-378..

Anderson, D. R., and K. P. Burnham. 2001. Commentary on models in ecology. Bulletin of the Ecological Society of America 82:160-161..

Angermeier, P.L. 2001. Reply to Povilitis: another conservation conundrum. Conservation Biology 15:536-538..

Atwood, H. L., Q. C. Fontenot, J. R. Tomasso, and J. J. Isely. 2001. Toxicity of nitrite to Nile tilapia: effect of fish size and environmental chloride. North American Journal of Aquaculture 63:49-51. .

Bain, M., N. Haley, D. Peterson, J. Waldman, and K. Arend. 2000. Harvest and habitats of Atlantic sturgeon Acipenser oxyrinchus Mitchill, 1815 in the Hudson River estuary: lessons for sturgeon conservation. Boletin Instituo Espanol de Oceanografia 16(1 y 2):65-75..

Bain, M.B., and S. Zhang. 2001. Threatened fishes of the world: Aspiorhynchus laticeps Day 1877 (Cyprinidae). Environmental Biology of Fishes 61:380..

Bak, J. M., K. G. Boykin, B. C. Thompson, and D. L. Daniel. 2001. Distribution of wintering ferruginous hawks (Buteo regalis) in relation to black-tailed prairie dog (Cynomys ludovicianus) colonies in southern New Mexico and northern Chihuahua. Journal of Raptor Research 35:124-129..

Baker, L. A., R. J. Warren, D. R. Diefenbach, W. E. James, and M. J. Conroy. 2001. Prey selection by reintroduced bobcats (Lynx rufus) on Cumberland Island, Georgia. American Midland Naturalist 145:80-93..

Balkenbush, P. E., and W. L. Fisher. 1999. Population characteristics and management of black bass in eastern Oklahoma streams. Proceedings of the Annual Conference Southeastern Association of Fish and Wildlife Agencies 53:130-143..

Ball, I. J., E. Garton, and R. Shea. 2000. History, ecology, and management of the rocky mountain population of trumpeter swans: implications for restoration. Bulletin of the Trumpeter Swan Society.

Ballard, G., D.G. Ainley, C.A. Ribic, and K. Barton. 2001. Effect of instrument attachment on foraging trip duration and nesting success of Adelie penguins. Condor 103: 481-490. .

Banks, A. B. and T. E. Martin. 2000. Variation among host species in probability of parasitism by brown-headed cowbirds: the role of host activity. Behavioral Ecology 12: 31-40.

Barber, D.R., T. E. Martin, M.A. Melchiors, R. E. Thill, and T. B. Wigley. 2000. Silvicultural practices and nesting fate of forest land birds. Conservation Biology..

Bayley, P.B. and J.T. Peterson. 2001. Species presence for zero observations: an approach and an application to estimate probability of occurrence of fish species and species richness. Transactions of the American Fisheries Society. 130: 620-633..

Beasley, C. A., and J. E. Hightower. 2000. Effects of a low-head dam on the distribution and characteristics of spawning habitat used by striped bass and American shad. Transactions of the American Fisheries Society 129:1372-1386..

Bell, E., W.G. Duffy and T.D. Roelofs. 2001. Fidelity and survival of juvenile coho salmon in response to a flood. Transactions of the American Fisheries Society. 130:450-458..

Bennetts, R.E., J.D. Nichols, J. Lebreton, R Pradel, J.E. Hines, and W.M. Kitchens. 2001. Methods for estimating dispersal probabilities and related parameters using marked animals. In: Colbert, J., J. D. Nichols, E Dabchin, and A Dhont, eds. Causes, Consequences, and Mechanisms of Dispersal at the Individual, Population, and Community Level. Oxford University Press. .

Bettoli, P.W., and L.E. Miranda. 2001. Cautionary note about estimating mean length at age with subsampled data. North American Journal of Fisheries Management 21:425-428..

Bissonette, J.A., C.S. Loftin, D. M. Leslie Jr., L. A. Nordstrom, and W.J. Fleming. 2000. The cooperative research unit program and wildlife education: historic development, future challenges. Wildlife Society Bulletin 28:534-541..

Boal, C.W. 2001. Agonistic behavior of Cooper's hawks. Journal of Raptor Research 35:253-256..

Boal, C.W. 2001. Nonrandom mating and productivity of adult and subadult Cooper's hawks. Condor 103:381-385.

Boal, C.W. and B.D. Bibles. 2001. Responsiveness of elf owls to conspecific and great horned owl vocalizations. Journal of Field Ornithology 72:66-71..

Bounds, D. L., T. A. Mollett, and M. H. Sherfy. 2001. The nutria nuisance in Maryland and the search for solutions. Aquatic Nuisance Species Digest 4(3):25, 28-31..

Bounds, D. L., and T. A. Mollett. 2000. Can nutria be eradicated in Maryland? Pp. 121-126 in Proceedings of the 19th Vertebrate Pest Conference (Salmon, T. P., and A. C. Crabb, Editors), University of California, Davis..

Bowman, J. L., D. R. Wood, F. J. Vilella, B. D. Leopold, L. W. Burger, Jr., and K. D. Godwin. 2001. Effect of Red-cockaded woodpecker management on vegetation composition and structure and subsequent impacts on game species. Proceedings of the Annual Meeting of the Southeastern Association of Fish and Wildlife Biologists 53:220-234..

Bozek, M.A. 2001. A second life for trees in lakes: as useful in water as they were on land. Lakeline 21: 26-30..

Bray, G.S., and H.L. Schramm, Jr. 2001. Evaluation of a statewide volunteer angler diary program for use as a fishery assessment tool. North American Journal of Fisheries Management 21:606-615. .

Brown, K. D., A. A. Echelle, D. L. Probst, J. E. Brooks, and W. L. Fisher. 2001. Catastrophic wildfire and number of populations as factors influencing risk of extinction for Gila trout (Oncorhynchus gilae). Western North American Naturalist 61:139-148..

Brown, K.M., R.M. Erwin, M.E. Richmond, P.A. Buckley, J.T. Tanacredi, and D. Avrin. 2001. Managing birds and controlling aircraft in the Kennedy airport-Jamaica Bay Wildlife Refuge complex: the need for hard data and soft opinions. Environmental Management 28:207-224..

Buckland, S. T., D. R. Anderson, K. P. Burnham, J. L. Laake, D. L. Borchers, and L. J. Thomas. 2001. An introduction to distance sampling: estimation abundance of biological populations. Oxford University Press, Oxford, UK. 448pp..

Burnham, K. P., and D. R. Anderson. 2001. Kullback-Leibler information as a basis for strong inference in ecological studies. Wildlife Research 28:111-119..

Canavan, C.M., C.A. Caldwell, and N.S. Bloom. 2000. Discharge of methylmercury-enriched hypolimnetic water from a stratified reservoir. The Science of the Total Environment 260:159-170..

Carline, R. F. 2001. Effects of high-frequency pulsed-DC electrofishing on a wild brown trout population. North American Journal of Fisheries Management 21:571-579. .

Castleberry, S.B., W.M. Ford, P.B. Wood, N.L. Castleberry and M.T. Mengak. 2001. Movements of Allegheny woodrats in relation to timber harveting. Journal of Wildlife Management 65(1):148-156..

Chang, X., Patino, R., Yoshizaki, G., Thomas, P. and Lee, V. H. 2000. Hormonal regulation and cellular distribution of connexin 32.2 and connexin 32.7 RNAs in the ovary of Atlantic croaker Gen. Comp. Endocrinol.120:146-156..

Chapin, F. S., A. D. McGuire, J. Randerson, R. Pielke Sr., D. Baldochhi, S. E. Hobbie, N. Roulet, W. Eugster, E. Kasischke, E. B. Rasterrer, S. A. Zimov, and S. W. Running. 2000. Arctic and boreal ecosystems of western North America as components of the climate system. Global Change Biology 6(Suppl. 1):211-223. .

Checkett, M. J., J. M. Coluccy and R. D. Drobney. 2001. Polygyny in Canada geese: an unusual example of nest sharing. Wilson Bulletin 113(1):109-110..

Clein, J. S., B. L. Kwiatkowski, A. D. McGuire, J. E. Hobbie, E. B. Rastetter, J. M. Melillo, and D. W. Kicklighter. 2000. Modelling carbon responses of tundra ecosystems to historical and projected climate: a comparison of a plot- and a global-scale ecosystem model to identify process-based uncertainties. Global Change Biology 6(Suppl.1):127-140. .

Cole, M.B., D.E. Arnold, B.J. Watten, and W.F. Krise. 2001. Haematological and physiological responses of brook charr, to untreated and limestone-neutralized acid mine drainage. Journal of Fish Biology 59:79-91..

Coluccy, J. M., R. D. Drobney, D. A. Graber and D. J. Witter. 2001. Attitudes of central Missouri residents toward local giant Canada geese and management alternatives. Wildlife Society Bulletin 29(1)116-123..

Conroy, M. J. and C.T. Moore. 2001. The role of optimization and simulation models in natural resource decision-making Pp. 91 to 104 in. T. Schenk and A. Franklin (eds). Modeling in natural resource management: development, interpretation, and application. Island Press. .

Conroy, M.J. 2000. An adaptive approach to habitat management for migratory birds in the southeastern United States. pp. 63- 69 in: Bonney, R., Pashley, D. N., Cooper, R, J., and Niles, L. (eds). Strategies for bird conservation: The Partners in Flight Planning Process; Proceedings of the 3rd Partners in Flight Workshop; 1995 October 1-5; Cape May, NJ. Proceedings RMRS-P-16. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 281 p..

Conroy, M.J. 2000. Conservation and land use decisions under uncertainty: models, data, and adaptation. Pp. 145-158 in. M. Hill and R. Aspinall (editors). Spatial information for land use management. OPA Overseas Publishing Associates, Ltd. .

Conway, C. K. and T. E. Martin. 2000. Effects of ambient temperature on avian incubation strategies: a model and test. Behavioral Ecology 11: 178-188..

Cox, C. A., R. A. Schultz, and C. S. Guy. 2001. Diets of white bass in Fall River Reservoir, Kansas. Journal of Freshwater Ecology 16:429-433..

Craig, P., C. Birkeland and S.A. Belliveau. 2001. High temperatures tolerated by a diverse assemblage of shallow water corals. Coral Reefs 20:185-189..

Darby, Philip C., P. L. Valentine-Darby, H. F. Percival, and W. M. Kitchens. 2001. Collecting Florida apple snails (Pomacea paludosa) from wetland habitats using funnel traps. Wetlands 21(2):308-311..

Davis, M.B., T.R. Simons, M.J. Groom, J.L. Weaver, and J.R. Cordes. 2001. The breeding status of American Oystercatcher on the east coast of North America and breeding success in North Carolina. Waterbirds 24(2): 195-202. .

Daw, S. K., and S. DeStefano. 2001. Forest characteristics of northern goshawk nest stands and post-fledging areas in Oregon. Journal of Wildlife Management 65:59-65..

DeFelice, R.C. and J.D. Parrish. 2001. Physical processes dominate in shaping invertebrate assemblages in reef-associated sediments of an exposed Hawaiian coast. Marine Ecology Progress Series 215(1):121-131..

DeStefano, S., and R. J. Steidl. 2001. The professional biologist and advocacy: what role do we play? Human Dimensions in Wildlife 6:11-19..

Delp, J. G., J. S. Tillma, M. C. Quist, and C. S. Guy. 2000. Age and growth of four centrarchid species in southeastern Kansas streams. Journal of Freshwater Ecology 15:475-478..

Devlin, G., and P.W. Bettoli. 2001. Seasonal fluctuation in growth and condition of trout in a southeastern tailwater. Proceedings of the Southeastern Association of Fish and Wildlife agencies 53(1999):100-109..

Diefenbach, D. R., C. F. Riegner, and T. S. Hardisky. 2001. Harvest and reporting rates of game farm ring-necked pheasants. Wildlife Society Bulletin 29:1050-1059

Dieterman, D. and C. Berry. 2000. Summer habitat associations of rare fishes in South Dakota tributaries to the Minnesota River. Proceedings of the South Dakota Academy of Science 79:103-110..

Ditchkoff, S. S., M. G. Sams, R. L. Lochmiller, and D. M. Leslie, Jr. 2001. Utility of tumor necrosis factor- and interleukin-6 as predictors of neonatal mortality in white-tailed deer. Journal of Mammalogy 82(1):239-245..

Ditchkoff, S. S., R. L. Lochmiller, R. E. Masters, W. R. Starry, and D. M. Leslie, Jr. 2001. Does fluctuating asymmetry of antlers in white-tailed deer (Odocoileus virginianus) follow patterns predicted for sexually selected traits? Proceedings of the Royal Society of London, B. Biological Sciences 268:891-898..

Doisy, K. E. and C. F. Rabeni. 2001. Flow conditions, benthic food resources, and invertebrate community composition in a low-gradient stream in Missouri. Journal of the North American Benthological Society 20(1):17-32..

Donovan, T. M., F. R. Thompson III, and J. Faaborg. 2000. Cowbird distribution at different scales of fragmentation: Tradeoffs between breeding and feeding opportunities. Pages 255-264 In Ecology and management of cowbirds (T. Cooke, S. K. Robinson, S. I. Rothstein, S. G. Sealy, J. N. M. Smith, eds.). University of Texas Press, Austin, TX..

Duguay, J.P, P.B. Wood and G.W. Miller. 2000. Effects of timber harvests on invertebrate biomass and avian nest success. Wildlife Society Bulletin 28(4): 1-9..

Dunning, J.B., Jr., B.J. Danielson, B.D. Watts, J. Liu, and D.G. Krementz. 2000. Studying wildlife at local and landscape scales: Bachman's sparrows at the Savannah River Site, South Carolina. Studies in Avian Biology 21:75-80. .

Dwyer, W.P.,B.B. Shepard and R.G. White. 2001. Effect of backpack electrofishing on westslope cutthroat trout injury and growth 110 and 250 days posttreatment. North American Journal of Fisheries Management 21:646-650..

Epton, J.A. and D.C. Fulton. 2000. Procedural justice in natural resource decision making: building healthy communities of interest. Book of Abstracts of the 8th International Symposium on Society and Resource Management. .

Farnsworth, G. L., K. C. Weeks, and T. R. Simons. 2000. Validating the assumptions of the Mayfield Method. Journal of Field Ornithology 71:658-664. .

Fernandez, P., D. J. Anderson, P. R. Sievert, and K. P. Huyvaert. 2001. Foraging destinations of three low-latitude albatross (Phoebastria) species. Journal of Zoology, London 254:391-404..

Ferrara, A.M. and E.R.Irwin. 2001. A standardized procedure for internal sex identification in Lepisostidae. North American Journal of Fisheries Management 21:530-535..

Fisher, W. L., P. E. Balkenbush, and C. S. Toepfer. 2001. Development of stream fish population sampling surveys and abundance estimates using GIS. Pages 253-265 in T. Nishida, P. J. Kailola, and C. E. Hollingworth, editors. Proceedings of the first international symposium on geographic information systems (GIS) in fishery science. Fishery GIS Research Group, Saitama, Japan..

Flint, P. L. and J. B. Grand, 1999. Patterns of variation in size and composition of greater scaup eggs: are they related? Wilson Bulletin 111:465-471. .

Forys, E. A., A Quistorff, and C. R. Allen. 2001. Potential fire ant (Hymenoptera: Formicidae) impact on the endangered Schaus swallowtail (Lepidoptera: Papilionidae). Florida Entomologist 84: 254-258. .

Forys, E. A., A. Quistorff, C. R. Allen and D. P. Wojcik. 2001. The likely cause of extinction of the tree snail Orthalicus rese reses (Say). Journal of Molluscan Studies 67:369-376. .

Foster, M.S., and G.R. VanBlaricom. 2001. Spatial variation in kelp forest communities along the Big Sur Coast of central California, USA. Cryptogamie Algologie 22: 173-186. .

Franklin, A. B., D. R. Anderson, R. J. Gutierrez and K. P. Burnham. 2000. Climate, habitat quality, and fitness in Northern Spotted Owl populations in northwest California. Ecological Monographs 70: 539-590..

Franklin, A. B., T. M. Shenk, D. R. Anderson, and K. P. Burnham. 2001. Statistical model selection: the alternative to null hypothesis testing. Pp. 75-90 in T. M. Shenk and A. B. Franklin, editors. Modeling in Natural Resource Management: Development, Interpretation, and Application. Island Press, Washington, D.C..

Franson, J. C., S. P. Hansen, A. E. Duerr, and S. DeStefano. 2001. Size and mass of grit in gizzards of sandhill cranes, tundra swans, and mute swans. Waterbirds 24:242-244..

Freeman, M.C., Z. Bowen, K. Bovee and E. Irwin. 2001. Flow and habitat effects on juvenile fish abundance in natural and altered flow regimes. Ecological Applications 2001:179-190..

Freilich, J., K. P. Burnham, C. M. Collins, and C. A. Garry. 2000. Factors affecting population assessments of desert tortoises. Conservation Biology 14:1479-1489..

Frescino, T. S., T. C. Edwards, Jr., and G. G. Moisen. 2001. Modelling spatially explicit forest structural variables using generalized additive models. Journal of Vegetation Science 12:15-26..

Fuller, T. K., and P. R. Sievert. 2001. Carnivore demography and the consequences of changes in prey availability. Pages 163-178 in J. L. Gittleman, S. M. Funk, D. W. Macdonald, and R. K. Wayne, editors. Carnivore conservation. Cambridge University Press, Cambridge, United Kingdom..

Fulton, D.C. 2000. Applying outcomes-based management to fish- and wildlife-based recreation. Pages 70-80 in Fulton, D.C., K.C. Nelson, D.H. Anderson, and D.W. Line, eds. Human dimenstions of natural resource management: emerging issues and practical applications..

Gabrey, S. W., A. D. Afton, and B. C. Wilson. 2001. Effects of structural marsh management and winter burning on plant and bird communities during summer in the Gulf Coast Chenier Plain. Wildlife Society Bulletin 29:218-231..

Gabrey, S. W., and A. D. Afton. 2001. Plant community composition and biomass in Gulf Coast Chenier Plain marshes: responses to winter burning and structural marsh management. Environmental Management 27:281-293..

Galat, D. L. and I. Zweimuller. 2001. Conserving large-river fishes: is the "highway analogy" an appropriate paradigm? Journal of the North American Benthological Society 20(2):266-279..

Garmestani, A.S., H.F. Percival, and K.M. Portier. 2001. Preliminary evaluation of helicopter survey as a method of assessing sea turtle nesting distribution in the Ten Thousands Islands of Florida. Marine Turtle Newsletter No. 93:1-5..

Garshelis, D.L., R.S. Sikes, D.E. Andersen, and E.C. Birney. 1999. Landowners' perceptions of crop damage and management practices related to black bears in east-central Minnesota. Ursus 11:219-224. .

Ghalambor, C. K., and T. E. Martin. 2001. Fecundity-survival trade-offs and parental risk-taking in birds. Science 292: 494-497.

Gipson, P. S., and J. F. Kamler. 2001. Survival and home ranges of opossums in northeastern Kansas. Southwestern Naturalist. 46: 178-182..

Gloutncy, M. L., R. T. Alisauskas, A. D. Afton, and S. M. Slattery. 2001. Foraging time and dietary intake by breeding Ross's and lesser snow geese. Oecologia 127:78-86..

Gomes, L.C., and L.E. Miranda. 2001. Riverine characteristics dictate composition of fish assemblages and limit fisheries in reservoirs of the Upper Parana River Basin. Regulated Rivers: Research and Management 17:67-76. .

Gore, J.A., J.B. Layzer, and J. Mead. 2001. Macroinvertebrate instream flow studies after 20 years; a role in stream management and restoration. Regulated Rivers: Research & Management 17:527-542..

Gregg, I.D., P.B. Wood and D.E. Samuels. 2000. American Woodcock use of reclaimed surface mines in West Virginia. Pages 9-22 in D.G. McAuley, J.G. Bruggink and G.F. Sepik, eds. Proceedings of the Ninth American Woodcock Symposium. USGS Biological Resources Division Information and Technology Report USGS/BRD/ITR-2000-0009. 117pp..

Greiner La Peyre, M.K., J.B. Grace, E. Hahn and I.A. Mendelssohn. 2001. The importance of competition in regulating species abundance along a salinity gradient. Ecology. 82(1):62-69..

Griffith, B., D. C. Douglas, D. E. Russell, R. G. White, T. R. McCabe, and K. R. Whitten. 2001. Effects of recent climate warming on caribou habitat and survival. Pages 17-19 in Green, R. E., M. Harley, M. Spalding, and C. Zockler, eds. Impacts of Climate Change on Wildlife. Royal Society for the Protection of Birds, Sandy, United Kingdom. .

Hall, C. A. S., P. W. Jones, T. M. Donovan, and J. P. Gibbs. 2000. Neoclassical economics and its effects on wildlife and wildlife management. The Wildlife Society Bulletin 28:16-25..

Hardison, B.S. and J.B. Layzer. 2001. Relations between complex hydraulics and the localized distribution of mussels in three regulated rivers. Regulated Rivers: Research & Management 17:77-84..

Henley, W.F., L.L. Zimmerman, and R.J. Neves. 2001. Design and evaluation of recirculating water systems for maintenance and propagation of freshwater mussels. North American Journal of Aquaculture 63: 144-155..

Henry, T.B., E.R. Irwin, J.M. Grizzle, W.G. Brumbaugh and M.L. Wildhaber. 2001. Gill lesions and death of bluegill in an acid mine drainage mixing zone. Environmental Toxicology and Chemistry 20:1304-1311..

Hightower, J. E., J. R. Jackson, and K. H. Pollock. 2001. Using telemetry methods to estimate natural and fishing mortality of striped bass in Lake Gaston, North Carolina. Transactions of the American Fisheries Society 130:557-567..

Hinojosa-Huerta, O., S. DeStefano, and W. W. Shaw. 2001. Abundance and distribution of the Yuma clapper rail (Rallus longirostris yumanensis) in the Colorado River delta, Mexico. Journal of Arid Environments 49:171-182..

Horn, D.J., and R.R. Koford. 2000. Relation of grassland bird abundance to mowing of Conservation Reserve Program fields in North Dakota. Wildl. Soc. Bull. 28:653-659..

Howell, C. A., S. C. Latta, T. M. Donovan, P. A. Porneluzi, and J. Faaborg. 2000. Landscape effects mediate breeding bird abundance in midwestern forests. Landscape Ecology 15:547-563..

Huber, H.R., S.J. Jeffries, R.F. Brown, R.L. DeLong, and G.R. VanBlaricom. 2001. Correcting aerial survey counts of harbor seals (Phoca vitulina richardsi) in Washington and Oregon. Marine Mammal Science 17: 276-293.

Irwin, E.R. and A.M. Ferrara. Fish tales: study seeking to tell story of Alabama's alligator gar. Highlights of Agricultural Research 47 (4):12-14..

Isely, J. J., and P. E. Stockett. 2001. Tag retention, growth and survival of red swamp crayfish marked with a visible implant tag. North American Journal of Fisheries Management 21:422-424. .

Jackson, J. R., and J. E. Hightower. 2001. Reservoir striped bass movements and site fidelity in relation to seasonal patterns in habitat quality. North American Journal of Fisheries Management 21: 34-45..

Jennings, C. A. and S. J. Zigler. 2000. Ecology and biology of paddlefish in North America: historical perspectives, management approaches, and research priorities. Reviews in Fish Biology and Fisheries 10:167-181..

Jester, L., M.A. Bozek, D.R. Helsel, and S.P. Sheldon. 2001 Euhrychiopsis lecontei distribution, abundance, and experimental augmentation for Eurasian watermilfoil in Wisconsin lakes. Journal of Aquatic Plant Management 38: 88-97..

Johnson, C. M., and W. K. Krohn. 2001. The importance of survey timing in monitoring seabird populations. Waterbirds, 24(1):22-33..

Kamler, J. F., and P. S. Gipson, and T. R. Snyder. 2000. Dispersal characteristics of young bobcats from northeastern Kansas. Southwestern Naturalist. 45: 543-546..

Kamler, J. F., and P. S. Gipson. 2000. Space and habitat use by resident and transient coyotes. Canadian Journal of Zoology. 78: 2106-2111..

Kendall, R.J., T.A Anderson, R.J. Baker, C.M. Bens, J.A. Carr, L.A. Chiodo, G.P. Cob III, R.L. Dickerson, K.R. Dixon, L.T.Frame, M.J. Hooper, C.F. Martin, S.T. McMurry, R. Patino, E.E. Smith, C.W. Theodorakis. 2001. Environmental Toxicology. In: Casarett & Doull's Toxicology, the Basic Sciences of Poisons. 6th Ed. C.D. Klaassen, (ed). .

Kinziger, A.P., R.M. Wood, S.A. Welsh. 2001. Systematics of Etheostoma tippecanoe and Etheostoma denoncourti (Perciformes: Percidae). Copeia. 2001:235-239..

Kitchens, W. M., R. E. Bennetts, and D. L. DeAngelis. 2001. Linkages between the snail kite population and wetland dynamics in a highly fractured South Florida hydroscape. In: Porter, J. W. and K. G. Porter, eds. Linkages Between Ecosystems: the South Florida Hydroscape. CRC /St. Lucie Press. 183-203..

Klenzendorf, S. A., and M.R. Vaughan. 1999. An overview of brown bear management in six European countries. Ursus 11:163-178.

Klumb, R.A., M.A. Bozek, R.V. Frie. 2001. Validation of three back-calculation models by using multiple oxytetracycline marks formed in the otoliths and scales of bluegill x green sunfish hybrids. Canadian Journal of Fisheries and Aquatic Sciences 58: 352-364..

Kocovsky, P. M., and R. F. Carline. 2000. A comparison of methods for estimating ages of unexploited walleyes. North American Journal of Fisheries Management 20:1044-1048..

Kocovsky, P. M., and R. F. Carline. 2001. Dynamics of the unexploited walleye population of Pymatuning Sanctuary, Pennsylvania, 1997-1998. North American Journal of Fisheries Management 21: 178-187..

Kocovsky, P. M., and R. F. Carline. 2001. Influence of extreme temperature on consumption and condition of walleyes in Pymatuning Sanctuary, Pennsylvania. North American Journal of Fisheries Management 21:198-207. .

Kosa, J. T., and M. E. Mather. 2001 Processes contributing to variability in regional patterns of juvenile river herring abundance across small coastal systems. Transactions of the American Fisheries Society 130: 600-619 .

Krementz, D. G., and J. S. Christie. 2000. Clearcut stand size and scrub-successional bird assemblages. Auk 117:913-924..

Krementz, D.G. 2000. Piney woods habitat management. Ninth Woodcock Symposium. Pages 50-54 in (D. G. McAuley, J. G. Bruggink, and G. F. Sepik, eds.). Proceedings of the Ninth Woodcock Symposium. U.S. G.S., Biological Resources Division Information and Technology Report USGS/BRD/ITR-2000-0009, Patuxent Wildlife Research Center, Laurel, Maryland. 117 pp..

Krementz, D.G., and J.G. Bruggink. 2000. Sources of variation in survival and recovery rates of American woodcock. Pages 55-64 in (D. G. McAuley, J. G. Bruggink, and G. F. Sepik, eds.). Proceedings of the Ninth Woodcock Symposium. U.S. G.S., Biological Resources Division Information and Technology Report USGS/BRD/ITR-2000-0009, Patuxent Wildlife Research Center, Laurel, Maryland. 117 pp. .

Kretzer, J. A., and J. F. Cully, Jr. 2001. Prairie dog effects on harvester ant species diversity and density. Journal of Range Management..

Kretzer, J. E., and J. F. Cully, Jr. 2001. A new Kansas record for Bolborhombus sallaei sallaei Bates (Coleoptera: Scarabaiedae). Journal of the Kansas Entomological Society 74:40..

Kretzer, J. E., and J. F. Cully, Jr. 2001. Effects of black-tailed prairie dogs on reptiles and amphibians in Kansas shortgrass prairie. The Southwestern Naturalist 46:171-177..

La Peyre, M..K., M.A. Reams and I.A. Mendelssohn. 2000. State wetland protection: a matter of context? Coastal Management. 28:287-302..

La Peyre, M.K., M.A. Reams, P.H. Templet, J.B. Grace and I.A. Mendelssohn. 2001. Identifying determinants of nations' wetland management programs using structural equation modeling: an exploratory analysis. Environmental Management 27(6):859-868..

La Peyre, M.K., Reams, M.A. and Mendelssohn, I.A. 2001. Linking actions to outcomes in wetland management: an overview of state wetland management. Wetlands 21(1):66-74. .

Leslie, D. M., Jr., G. K. Wood, and T. S. Carter. 2000. Productivity of endangered least terns (Sterna antillarum athalassos) below a hydropower and flood-control facility on the Arkansas River. Southwestern Naturalist 45:483-489..

Liao, H., C. L. Pierce, and J. G. Larscheid. 2001. Empirical assessment of indices of prey importance in the diets of predacious fish. Transactions of the American Fisheries Society 130:583-591..

Loftin, C.S., N. Ansay, and W.M. Kitchens. 2001. Development and application of a spatial hydrology model of Okefenokee Swamp, Georgia. Journal of the American Water Resources Association 37(4)..

Loftin, C.S., S.B. Aicher, and W.M. Kitchens. 2000. Effects of the Suwannee River sill on the hydrology of Okefenokee Swamp: Application of research results in the environmental assessment procedure. Pages 102-110 in S.F. McCool, D.N. Cole, W.T. Borrie, and J. O'Loughlin, eds., Proceedings of the 1999 National Wilderness Research Conference, USDA Forest Service, Rocky Mountain Research Station, Ogden, UT. OMRS-P-15-Vol 3..

Long, J. M., and W. L. Fisher. 2000. Inter-annual and size-related differences in the diets of three sympatric black bass in an Oklahoma reservoir. Journal of Freshwater Ecology 15:465-474..

Long, J. M., and W. L. Fisher. 2001. Precision and bias of largemouth, smallmouth, and spotted bass ages estimated from scales, whole otoliths, and sectioned otoliths. North American Journal of Fisheries Management 21:636-645..

Malecki, R.A., A.D. Fox, and B.D.J. Batt. 2000. An aerial survey of nesting greater white-fronted and Canada geese in west Greenland. Wildfowl 51:49-58..

Malecki, R.A., B.D.J. Batt, and S.E. Sheaffer. 2001. Spatial and temporal distribution of Atlantic Population Canada geese. Journal of Wildlife Management 65(2):242-247..

Manolis, J.C., D.E. Andersen, and F.J. Cuthbert. 2000. Patterns in clearcut edge and fragmentation studies in northern hardwood-conifer landscapes: retrospective power analyses and Minnesota results. Wildlife Society Bulletin 28:1088-1101..

Manolis, J.C., D.E. Andersen, and F.J. Cuthbert. 2000. Uncertain nest fates in songbird studies and variation in Mayfield estimation. Auk 117:615-626..

Margraf, F.J. 2001. A new life for a trusted old servant: Revision of the AFS Constitution. Fisheries 26(6):28-34..

Martin, K. W., W. L. Puckette, S. L. Hensley, and D. M. Leslie, Jr. 2000. Internal cave gating as a means of protecting cave-dwelling bat populations in eastern Oklahoma. Proceedings of the Oklahoma Academy of Science 80:133-137..

Martin, P. R., and T. E. Martin. 2001. Behavioral interactions between two coexisting wood warblers (Parulidae: Vermivora): experimental and empirical tests. Ecology 82: 207-218..

Martin, P. R., and T. E. Martin. 2001. Ecological and fitness consequences of coexistence in two congeneric wood warblers (Parulidae: Vermivora): a removal experiment. Ecology 82: 189-206..

Martin, T. E. 2001. Abiotic vs. biotic influences on habitat selection of coexisting species, with implications for climate change. Ecology 82: 175-188..

Martin, T. E., A. P. Moller, S. Merino, and J. Clobert. 2001. Does clutch size evolve in response to parasites and immunocompetence? Proceedings of the National Academy of Sciences, USA 98: 2071-2076. .

Martinez, O., O. H. Garrido, G. B. Reynard, W. Suarez, and J. W. Wiley. 2000. A new family and genus of bird (Aves: Caprimulgiformes: Nyctibiidae) for Cuba. Pitirre 13(3):65-67..

Mazik, P.M. and N.C. Parker. 2001. Semi-Intensive systems IN Fish Hatchery Management, G. Wedemeyer, editor. American Fisheries Society, Bethesda, MD..

McGuire, A. D., J. S. Clein, J. M. Melillo, D. W. Kicklighter, R. A. Meier, C. J. Vorosmarty, and M. C. Serreze. 2000. Modelling carbon responses of tundra ecosystems to historical and projected climate: Sensitivity of pan-Arctic carbon storage to temporal and spatial variation in climate. Global Change Biology 6 (Suppl. 1):141-159. .

McGuire, A. D., S. Sitch, J. S. Clein, R. Dargaville, G. Esser, J. Foley, M. Heimann, F. Joos, J. Kaplan, D. W. Kicklighter, R. A. Meier, J. M. Melillo, B. Moore III, I. C. Prentice, N. Ramankutty, T. Reichenau, A. Schloss, H. Tian, L. J. Williams, and U. Wittenberg. 2001. Carbon balance of the terrestrial biosphere in the twentieth century: Analyses of CO2, climate and land use effects with four process-based ecosystem models. Global Biogeochemical Cycles 15:183-206. .

Melton, C.M, Zaunbrecher, G.M., Yoshizaki, G., Patino, R., Whisnant, C.S., Rendon, A. and Lee, V.H. 2001. Expression of connexin RNA and protein in developing follicles of prepubertal porcine ovaries. Comp. Biochem. Physiol. Part B 130:43-55..

Menzel, M.A., S.F. Owen, W.M. Ford, J.W. Edwards, P.B. Wood, B.R. Chapman, and K.V. Miller. 2001. Menzel, M.A., S.F. Owen, W.M. Ford, J.W. Edwards, P.B. Wood, B.R. Chapman, and K.V. Miller. 2001. Roost tree selection by northern long-eared bat (Myotis septentrionalis) maternity colonies in an industrial forest of the central Appalachian Mountains. Forest Ecology and Management 5601(2001):1-8. .

Miranda, L.E. 2001. Crappie fisheries: managing with regulations. Lakeline 21(3):26-28..

Miranda, L.E., and B.S. Dorr. 2000. Size selectivity of crappie angling. North American Journal of Fisheries Management 20:706-710..

Miranda, L.E., and H.L. Schramm, Jr. 2000. Selecting gear for monitoring fish assemblages. Pages 3-13 in I.G. Cowx, editor. Management and ecology of river fisheries. Fishing News Books, Blackwell Science, Oxford, U.K..

Miranda, L.E., and M.S. Allen. 2000. Use of length limits to reduce variation in crappie fisheries. North American Journal of Fisheries Management 20:752-758..

Mitro, M. G., and A. V. Zale. 2000. Use of distance sampling to estimate rainbow trout redd abundances in the Henry's Fork of the Snake River, Idaho. Intermountain Journal of Sciences 6:223-231..

Moring, John R. 1999 (issued in 2001). Cruises of the Albatross off San Diego and other parts of southern California, 1889-1916. Marine Fisheries Review 61(4): 22-30..

Moring, John R. 2001. Appearance and possible homing of two species of sculpins from Maine tidepools. Northeastern Naturalist 8(2): 207-218..

Nichols, K. M., E. M. Snyder, S. A. Snyder, S. L. Pierens, S. R. Miles-Richardson, J. P. Giesy. 2001. Effects of nonylphenol ethoxylate (NPEO) exposure on reproductive output and bioindicators of environmental estrogen exposure in fathead minnows, Pimephales promelas. Environmental Toxicology and Chemistry 20(3): 510-522.

Nate, N.A., M.A. Bozek, M.J. Hansen, and S.W. Hewett. 2001. Variation of adult walleye abundance in relation to recruitment and limnological variables in northern Wisconsin lakes. North American Journal of Fisheries Management 21: 441-447..

Naugle, D., R. Johnson, M. Estey, and K. Higgins. 2000. A landscape approach to conserving wetland bird habitat in the prairie pothole region of eastern South Dakota. Wetlands 20:588-604. .

Nerbonne, B.A. and B. Vondracek. 2001. Effects of land use on benthic macroinvertebrates and fish in the Whitewater River, Minnesota. Environmental Management 28:87-99..

Nitschke, P., M. E. Mather, and F. Juanes. 2001. Length-, weight-, and age-fecundity relationships for cunner (Tautogolabrus adspersus). North American Journal of Fisheries Management 21:86-95 .

Oakley, M. J. D. L. Bounds, T. A. Mollett, and E. C. Soutiere. 2001. Survival and home range estimates of pen-raised northern bobwhite quail in buffer strip habitats. Quail 5 -- 5th National Quail Symposium 5:59-65..

Overman, N.C., and D.L.Parrish. 2001. Stable isotope composition of walleye: 15N accumulation with age and area-specific differences in 13C. Canadian Journal of Fisheries and Aquatic Sciences 58: 1253-1260. .

Owen, S.F., M.A. Menzel, W.M. Ford, B.R. Chapman, K.V. Miller, J.W. Edwards, and P.B. Wood. 2001. First summer record of a female Indiana bat, Myotis sodalis, in West Virginia. Journal of the Elisha Mitchell Scientific Society 117(2):132-134..

Pan, Y.-D., J. M. Melillo, D. W. Kicklighter, X.-M. Xiao, and A. D. McGuire. 2001. Modeling structural and functional responses of terrestrial ecosystems in China to changes in climate and atmospheric CO2. Acta Phytoecologica Sinica 25:175-189. .

Patino, R., Xia, Z., Gale, W.L., Wu, C., Maule, A.G. and Chang, X. 2000. Novel transcripts of the estrogen receptor a gene in channel catfish. Gen. Comp. Endocrinol. 120:314-325..

Patino, R., Yoshizaki, G., Thomas, P., and Kagawa, H. 2001. Gonadotropic control of ovarian follicle maturation: the two-stage concept and its mechanisms. Comp. Biochem. Physiol. Part B 129:427-439..

Paukert, C. P., and W. L. Fisher. 2001. Characteristics of paddlefish in a southwestern U.S. reservoir, with comparisons of lentic and lotic populations. Transactions of the American Fisheries Society 130:634-643..

Paukert, C. P., and W. L. Fisher. 2001. Spring movements of paddlefish in a prairie reservoir system. Journal of Freshwater Ecology 16:113-124..

Petersen, M. R., J. B. Grand, and C. P. Dau. 2000. Spectacled Eider (Somateria fischeri). In The Birds of North America, (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C. No. 547. .

Peterson, J.T., and C.F. Rabeni. 2001. Evaluating the efficiency of a one-square-meter quadrat sampler for riffle-dwelling fish. North American Journal of Fisheries Management 21:76-85..

Peterson, J.T., and C.F. Rabeni. 2001. Evaluating the physical characteristics of channel units in an Ozark stream. Transactions of the American Fisheries Society 130(5):898-910..

Peterson, J.T., and C.F. Rabeni. 2001. The relation of fish assemblages to channel units in an Ozark stream. Transactions of the American Fisheries Society 130(5):911-926..

Pierce, C. L., A. M. Corcoran, A. N. Gronbach, S. Hsia, B. J. Mularkey, and A. J. Schwartzhoff. 2001. Influence of diel period on electrofishing and beach seining assessments of littoral fish assemblages. North American Journal of Fisheries Management 21:918-926..

Pierce, C. L., M. D. Sexton, M. E. Pelham and J. G. Larscheid. 2001. Short-term variability and long-term change in the composition of the littoral zone fish community in Spirit Lake, Iowa. American Midland Naturalist 146(2):290-299..

Pierce, C. L., M. D. Sexton, M. E. Pelham, H. Liao and J. G. Larscheid. 2001. Dynamics of the littoral fish assemblage in Spirit Lake, Iowa and implications for prey availability for piscivores. North American Journal of Fisheries Management 21:884-896..

Poff, N.L., P.L. Angermeier, & co-authors. 2001. Fish diversity in streams and rivers. Pages 315-349 in FS Chapin et al., eds. Global biodiversity in a changing environment: Scenarios for the 21st century. Springer-Verlag, New York..

Pope, K.L., J.L. Brown, W.G. Duffy and P.H. Michaletz. 2001. A caloric-based evaluation of diet indices. Environmental Biology of Fishes. 61:329-339..

Quist, M. C., and C. S. Guy. 2001. Growth and mortality of prairie stream fishes and relations with instream habitat. Ecology of Freshwater Fish 10:88-96. .

Rabeni, C. F. and S. M. Hoel. 2000. The importance of woody debris to benthic invertebrates in two Missouri streams. SIL, Verhandlungen Internationale Vereinigung fur Theoretische und Angewandte Limnologie 27:1499-1502..

Ribic, C.A. and D.W. Sample. 2001. Associations of grassland birds with landscape factors in southern Wisconsin. American Midland Naturalist 146:105-121. .

Rieman, B., J. T. Peterson, J. Clayton, P. Howell, R. Thurow, W. Thompson, and D. Lee. 2001. Evaluation of potential effects of federal land management alternatives on trends of salmonids and their habitats in the interior Columbia River basin. Forest Ecology and Management 153:43-62..

Riley, S.J. and R.A. Malecki. 2001. A landscape analysis of cougar distribution and abundance in Montana, USA. Environmental Management 28:317-323..

Runstrom, A.L, B. Vondracek, and C.A. Jennings. 2001. The population dynamics of paddlefish in the lower Wisconsin River. Transactions of the American Fisheries Society 130:546-556..

Ryce, E. K. N., A. V. Zale, and R. B. Nehring. 2001. Lack of selection for resistance to whirling disease among progeny of Colorado River rainbow trout. Journal of Aquatic Animal Health 13:63-68..

Snyder, S. A., T. L. Keith, S. L. Pierens, E. M. Snyder, J. P. Giesy. 2001. Bioconcentration of nonylphenol in fathead minnows (Pimephales promelas). Chemosphere 44(8): 1697-1702.

Snyder, S. A., K. L. Kelly, A. H. Grange, G. W. Sovocool, E. M. Snyder, E. M., and J. P. Giesy. 2001. Pharmaceuticals and personal care products in the waters of Lake Mead, Nevada. Pages 116-139. In: Daughton, C. G., Jones-Lepp, T. L. (editors), Pharmaceuticals and Personal Care Products in the Environment. Scientific and Regulatory Issues. ACS Symposium Series 791. American Chemical Society. Washington, D.C..

Sallabanks, R., J. R. Walters, and J. A. Collazo. 2000. Breeding bird abundance in bottomland hardwood forests: habitat, edge, and patch size effects. Condor 102:748-758..

Sammons, S.M., P.W. Bettoli, and V. Grear. 2001. Hatching periodicity, hatching distributions, and daily growth rates of age-0 white crappies in response to hydrology and zooplankton densities in Normandy Reservoir, Tennessee. Transactions of the American Fisheries Society 130:442-449..

Sarkar, S., N.C. Parker, J. Garson, A. Aggarwal, and S. Haskell. 2001. Place prioritization for Texas using GAP data: The use of biodiversity and environmental surrogates within socioeconomic constraints. Gap Analysis Bulletin 9:48-50..

Schisler, G. J., E. P. Bergersen, P. G. Walker, J. Wood and J. K. Epp. 2001. Comparison of single-round polymerase chain reaction (PCR) and pepsin-trypsin digest (PTD) methods for detection of Myxobolus cerebralis. Diseases of Aquatic Organisms 45:109-114..

Schrank, S. J., C. S. Guy, M. R. Whiles, and B. L. Brock. 2001. Influence of instream and landscape-level factors on the distribution of Topeka shiners Notropis topeka in Kansas streams. Copeia 2001 (2)413-421..

Schrank, S. J., P. J. Braaten, and C. S. Guy. 2001. Spatiotemporal variation in density of larval bighead carp in the lower Missouri River. Transactions of the American Fisheries Society 130:809-814..

Schweitzer, S. H., and D. M. Leslie, Jr. 2000. Stage-specific survival rates of endangered least terns (Sterna antillarum) in northwestern Oklahoma. Proceedings of the Oklahoma Academy of Science 80:53-60. .

Shackford, J. S., and D. M. Leslie, Jr. 2000. Status of breeding mountain plovers (Charadrius montanus) on cultivated landscapes in western Oklahoma. Proceedings of the Oklahoma Academy of Science 80:47-51..

Smogor, R.A., and P.L. Angermeier. 2001. Determining a regional framework for assessing biotic integrity in Virginia streams. Transactions of the American Fisheries Society 130: 18-35..

Sovell, L.A., B. Vondracek, J.A. Frost, and K.G. Mumford. 2000. Impacts of rotational grazing and riparian buffers on physicochemical and biological characteristics of southeastern Minnesota streams. Environmental Management 26:629-641..

Steketee, A.K., P.B. Wood, J.G. Bruggink, D.E. Samuel and J.I. Cromer. 2000. Land-use/land-cover changes along woodcock singing ground survey routes in West Virginia. Pages 107-116 in D.G. McAuley, J.G. Bruggink and G.F. Sepik, eds. Proceedings of the Ninth American Woodcock Symposium. USGS Biological Resources Divsion Information and Technology Report USGS/BRD/ITR-2000-0009. 117pp..

Stoeckel, J.N., and R.J. Neves. 2001. Induced spawning of the margined madtom. North American Journal of Aquaculture 63:99-108..

Strussmann, C.A., Karube, M., Miranda, L.A., Patino, R., Somoza, G.M., Uchida, D., and Yamashita, M. In press. Methods of sex control in fishes and an overview of novel hypotheses concerning the mechanisms of sex differentiation. Proceedings of the International Conference on Advanced Technologies in Fisheries and Marine Sciences, Trivandrum, India, 2001..

Taylor, C.E., Otis, D. L., Hill, H. E., Jr., and C. R. Ruth. 2000. Design and evaluation of mail surveys to estimate deer harvest parameters. Wildlife Society Bulletin 28:717-723..

Thompson, B. C. , M. A. Hughes, and M. C. Andersen. 2001. Effects of including non-breeding bird species on predicted bird distributions for conservation planning in New Mexico. Biological Conservation 100:229-242..

Thompson, F. R. III, S. K. Robinson, T. M. Donovan, J. Faaborg, and D. Whitehead. 2000. Biogeographic, landscape, and local factors affecting cowbird abundance and host parasitism levels. Pages 271-279 In Ecology and management of cowbirds (T. Cooke, S. K. Robinson, S. I. Rothstein, S. G. Sealy, J. N. M. Smith, eds.). University of Texas Press, Austin, TX..

Townsend, D. E., II, R. E. Masters, R. L. Lochmiller, D. M. Leslie, Jr., S. J. De Maso, and A. D. Peoples. 2001. Characteristics of nest sites of northern bobwhites in western Oklahoma. Journal of Range Management 54:260-264..

VanBlaricom, G.R. 2001. Book Review: "Biology of Marine Mammals", edited by J.E. Reynolds III and S.E. Rommel. Marine Mammal Science 17: 202-205.

VanBlaricom, G.R., L. R. Gerber, and R. L. Brownell, Jr. 2001. Extinctions of marine mammals. Pages 37-69 in S. A. Levin (editor). Encyclopedia of biodiversity, volume 4. Academic Press, San Diego, California.

Van Kirk, R. W. and A. V. Zale. 2000. Aquatic resources of the Henry's Fork watershed. Intermountain Journal of Sciences 6:103-332..

Vaske, J.J., D.C. Fulton, and M.J. Manfredo. 2001. Human dimensions considerations in wildlife management planning. Pages 89-105. In D. Decker and T. Brown, eds. Human dimensions of wildlife management in North America. The Wildlife Society..

Vaughan, M.R., and T.K. Fuller, editors. 1999. Ursus 11:1-292.

Vokoun, J. C. and C. F. Rabeni. 2001. A standardized sampling protocol for channel catfish in prairie streams. North American Journal of Fisheries Management 21(1):188-197..

Vokoun, J. C., C. F. Rabeni and J. Stanovick. 2001. Sample-size requirements for evaluating population size-structure. North American Journal of Fisheries Management 21(3):660-665..

Vondracek, B., K.L. Blann and B. A. Nerbonne. 2001. Habitat-fish relationships across local to watershed scales. pp.7-22. in R. DuBois, K. Kayle, M. Ebbers, and S. Turner, editors. Trout and the trout angler: Workshop II. American Fisheries Society, North Central Division, Salmonid Technical Committee, St. Paul, Minnesota..

Walsh, M., M. Bain, T. Squires, Jr., J.R. Waldman and I. Wirgin. 2001. Morphological and genetic variation among shortnose sturgeon Acipenser brevirostrum from adjacent and distant rivers. Estuaries 24:41-48..

Warrillow, J., M. Culver, E. Hallerman, and M. Vaughan. 2001. Subspecific affinity of black bears in the White River National Wildlife Refuge. Journal of Heredity 92:226-233.

Weakland, C.A., P.B. Wood, and W.M. Ford. 2001. Responses of songbirds to diameter-limit cutting in the central Appalachians of West Virginia. Forest Ecology and Management 5602(2001):1-15.

Welch, J. R., D. G. Krementz, and J. B. Berdeen. 2001. Management of Fields for Nocturnal Use by Wintering American Woodcock. Georgia Journal of Science 59:101-107..

Whitledge, G. W. and C. F. Rabeni. 2000. Benthic community metabolism in three habitats in an Ozark stream. Hydrobiologia 437:165-170..

Wiley, J. W. 2001. [Review of] Bibliography of the natural history of the Lesser Antilles with particular reference to the terrestrial and freshwater environment (1900-2000).--Georg Waldmann and Michael Stevens. 2001. Acta Biologica Benrodis Supplement 8. 209 pp. ISBN 3-927889-90-3. El Pitirre 14(2):89..

Wiley, J. W. 2001. [Review of] The birds of the Cayman Islands. An annotated checklist.--Patricia E. Bradley. 2000. BOU Checklist No. 19. British Ornithologists' Union, Herts, UK. ISBN 0907446 23 X. xvi + 253 pp. 32 pp. of color photographs by Patricia Bradley and Yves-Jacques Rey-Millet. L35.00 (hardback). El Pitirre 14(2):88-89..

Wiley, James W. 2001. [Review of] Bird songs in Jamaica.--George B. Reynard and Robert L. Sutton. 2000. Library of Natural Sounds, Cornell Laboratory of Ornithology, Ithaca, NY 14850. ISBN 0-938027-48-4. Two-CD set (US$18.95 + $1.87 postage and handling) or two cassettes (US$18.95 + $2.09 postage and handling), both with 15 pp. booklet. El Pitirre 14(2):90..

Wiley, James W. 2001. [Review of] Oiseaux des Antilles.--Jean C. Roche, Edouard Benito-Espinal, and Patricia Hautcastel. 2000. Guides Sonores CEBA (Centre Bioacoustique Alpin). Ref. CA-17-18. Distributor: Fremeaux & Associes, 20 rue Robert Giraudineau, 94300 Vincennes, France. Two-CD set with 34 page illustrated booklet. 199.00 FF - 30.34L. El Pitirre 14(2):90-91..

Williams, B.K. 2000. Perspectives on regulation of the sport harvest of wildlife. North American Wildlife and Natural Resources Conference 65:61-64..

Williams, B.K. 2001. Uncertainty, learning, and the optimal management of wildlife. Env. Ecol. Stat. 8:269-288.

Williams, B.K., and J.D. Nichols. 2001. Systems identification and the adaptive management of waterfowl in the United States. Wildlife Biology 7:129-142. .

Wilzbach, M. 2001. Review of "Wildstream: a natural history of the free flowing river". Fisheries 28(8):43..

Wilzbach, P. and K.W. Cummins. 2000. Profitable stream positions differ for brook trout and cutthroat trout. Pg. 265-266 in Wild Trout VII. Management in the New Millenium: are we ready?.

Winton, B. R., D. M. Leslie, Jr., and J. R. Rupert. 2000. Breeding ecology and management of snowy plovers in north-central Oklahoma. Journal of Field Ornithology 71:573-584..

Woehler, E.J, J. Cooper, J.P. Croxall, W.R. Fraser, G.L. Kooyman, G.D. Miller, D.C. Nel, D.L. Patterson, H-U. Peter, C.A. Ribic, K. Salwicka, W.Z. Trivelpiece, and H. Weimerskirch. 2001. A statistical assessment of the status and trends of Antarctic and Subantarctic seabirds. Report to the Scientific Committee on Antarctic Research, Cambridge, England. (peer-reviewed) .

Wojcik, D. P., C. R. Allen, R. J. Brenner, E. A. Forys, D. P. Jouvenaz, and R. S. Lutz. 2001. Red imported fire ants: impact on biodiversity. American Entomologist 47(1):16-23..

Wood, P.B., J.B. Churchill, and T. McClellan. 1999. Breeding bird use of crop tree release harvests, Cooper's Rock State Forest, West Virginia. Proceedings of the WV Academy of Sciences. 71:48-55..

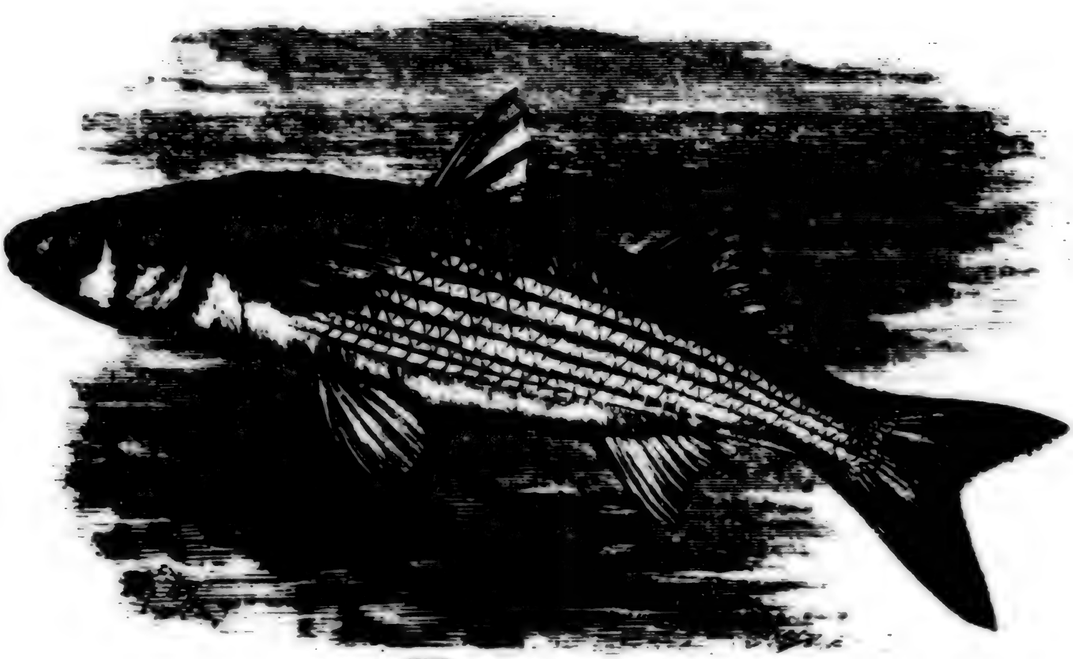
Woodward, A. J. W., S. D. Fuhlendorf, D. M. Leslie, Jr., and J. Shackford. 2001. Influence of landscape composition and change on lesser prairie-chicken (Tympanuchus pallidicinctus) populations. American Midland Naturalist 145:261-274..

Wright, T. F., C. A. Toft, E. Enkerlin-Hoeflich, J. Gonzalez-Elizondo, M. Albornoz, A. Rodriguez-Ferrado, F. Rojas-Suarez, V. Sanz, A. Trujillo, S. R. Beissinger, V. Berovides A., X. Galvez A., A. T. Brice, K. Joyner, J. Eberhard, J. Gilardi, S. E. Koenig, S. Stoleson, P. Martuscelli, J. M. Meyers, K. Renton, A. M. Rodriguez, A. C. Sosa-Asanza, F. J. Vilella, and J. W. Wiley. 2001. Nest poaching in Neotropical parrots. Conservation Biology 15(3):710-720..

Zettler, J. A., T. P. Spira, and C. R. Allen. 2001. Ant-seed mutualisms: can fire ants sour the relationship? Biological Conservation 101: 249-253 .

Zimmer, K.D., M.A. Hanson, M.G. Butler and W.G. Duffy. 2001. Influence of fathead minnows on nutrient cycling, nutrient partitioning and ecosystem structure in prairie wetlands. Achives fur Hydrobiologia 150:411-433..

Zimmer, K.D., M.A. Hanson, M.G. Butler and W.G. Duffy. 2001. Size distribution of aquatic invertebrates in two prairie wetlands, with and without fish, with implications for community production. Freshwater Biology 46:1-14..



Technical Publications of Federal Unit Staff

Alvarez-Flores, C.M., and G.R. VanBlaricom. Evaluation of factors influencing the population dynamics of the southern resident population of killer whales (Orcinus orca [L.]). Final project report. Orca Relief Citizens Alliance, Friday Harbor, Washington. 37 pages.

Angermeier, P.L. and A.E. Rosenberger. 2000. A survey of the fish fauna at three sites on the Nottaway River in Fort Pickett, Virginia. Final Report to Conservation Management Institute, Blacksburg, Virginia. 7pp..

Angermeier, P.L., S.N. Luoma, and P.B. Moyle. 2001. Summary of CALFED's Workshop on Splittail. Final Report to CALFED, Sacramento, CA. 8pp..

Anteau, M. J., and A. D. Afton. 2000. Nutrient-reserve dynamics of lesser scaup during spring migration in the Mississippi flyway. Annual Progress Report. 11pp..

Anteau, M. J., and A. D. Afton. 2001. Nutrient-reserve dynamics of lesser scaup during spring migration in the Mississippi flyway. Annual Progress Report. 12pp..

Arterburn, J., D. Kirby, and C. Berry. 2001. Biologist opinions and anglers' attitudes concerning catfish and their management in the Mississippi River basin. Final Report to MICRA, Des Moines, Iowa, 206 pp..

Baker, T. L. and C. A. Jennings. 2000. Survival, movement patterns, and habitat use of adult striped bass in Lake Blackshear, GA. Final Project (Project No. 10-25-RR251-122)Report to Georgia Department of Natural Resources. 75 p..

Baker, T. L. and C. A. Jennings. 2001. Downstream through-dam movement of advanced Phase II striped bass stocked and Lake Blackshear, Georgia. Final Report to Georgia Department of Natural Resources (Project 10-25-RR251-124). 12 p..

Bank, M.S., T.A. Haines, and C.S. Loftin. 2001. Preliminary estimates of habitat use and mercury content of two-lined salamanders in Acadia National Park, Maine. Abstract, Maine Water Conference, Augusta, ME..

Beck, K.M., and R.J. Neves. 2001. Propagation studies of the endangered dwarf wedgemussel. Final Report to the North Carolina Department of Transportation, Raleigh, NC. 63 pp..

Berry, C. and B. Young. Introduction to the Benthic Fishes Study. volume 1: Population structure and habitat use of benthic fishes along the Missouri and Lower Yellowstone rivers. U. S. Geological Survey, Cooperative Research Units, South Dakota State University, Box 2140B, Brookings..

Boal, C.W. 2001. Strategies for monitoring common black-hawk (Buteogallus anthracinus) populations in North America. USGS-North American Raptor Monitoring Strategy..

Boal, C.W., D.E. Andersen, and P.L. Kennedy. 2001. Home range and habitat use of northern goshawks (Accipiter gentilis) in Minnesota. MN Cooperative Fish and Wildlife Research Unit, St. Paul, MN. 42pp..

Boal, C.W., D.E. Andersen, and P.L. Kennedy. 2001. Home range and habitat use of northern goshawks (Accipiter gentilis) in Minnesota. Final Report. Minnesota Cooperative Fish and Wildlife Research Unit..

Bolduc, F. and A. D. Afton. 2001. Effects of structural marsh management on invertebrate and waterbird communities on Rockefeller State Wildlife Refuge, Louisiana. Quarterly Progress Report. 4pp..

Bolduc, F., and A. D. Afton. 2000. Effects of structural marsh management on invertebrate and waterbird communities on Rockefeller State Wildlife Refuge, Louisiana. Quarterly Progress Report. 15pp..

Bowman, S., and J. E. Hightower. 2001. American shad and striped bass spawning migration and habitat selection in the Neuse River, North Carolina. Final report to the North Carolina Marine Fisheries Commission. North Carolina Cooperative Fish and Wildlife Research Unit, NCSU, Raleigh, NC..

Bowman, S., and J. E. Hightower. 2001. Dam removal increases fish spawning habitat. Habitat Hotline Atlantic VIII(2):1-5..

Boykin, K.G., A.D. DeLorenzo, B. McKown, R. Deitner, and B.C. Thompson. 2000. Southwest Regional Gap Analysis Project: The New Mexico Ecoregional Component (Start-up Project). Research Completion Report, Research Work Order No. 34, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 59pp..

Boykin, K.G., J. Bak, A.J. Kroll, M. Rivieccio, R. A. Deitner, B. C. Thompson, and M.C. Andersen. 2001. Application and assessment of species at risk conservation approaches at Fort Bliss Military Reservation and White Sands Missile Range, New Mexico and Texas. Research Completion Report to U.S. Army Environmental Center, Research Work Order No. 32, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 95pp + 10 app..

Bozek, M.A. 2001. Book Review for Transactions of the American Fisheries Society. Restoring life in running waters: better biological monitoring. By: J.R. Karr and E.W. Chu. Island Press. Washington. D.C. 1999. 206 pages. .

Brown, K.M., M.E. Richmond, and R.M. Erwin. 2001. Aspects of the breeding biology and foraging ecology of Laughing Gulls in the Jamaica Bay-Kennedy Airport complex: a basis for future wildlife management decisions. Technical Report to the National Park Service. 131 pp. August 31..

Bryan, C. F., and B. W. Bryan. 2000. Effects of low-water crossings on the periphyton in four streams on Fort Polk, Louisiana. Contract #99CRSA097, WRD: 31pp..

Bryan, C. F., and B. W. Bryan. 2001. Historical review of diatoms in the periphyton of Fort Polk streams. Volume 3, The Environmental Source Book, Natural History of Fort Polk. USGS, WRD. Baton Rouge, LA. 43pp +.

Budy, P. 2001. Analytical approaches to assessing recovery options for Snake River chinook salmon. UTCFWRU 2001(1):1-86..

Carline, R. F. 2000. Effects of annual electrofishing with high-frequency DC on wild brown trout. pages 227-228, in D. Schill, S. Moore, P. Byroth, and B. Hamre, editors, Wild Trout VII Management in the new millenium: are we ready? .

Carline, R. F., C. Gill, K. Patten, and A. Smith. 2001. Effects of bridge and road construction on Spring Creek: Route 26 transportation improvement project. Progress report submitted to Pennsylvania Department of Transportation and Pennsylvania Fish and Boat Commission..

Chipps, S.R. and B.H. Holcomb. 2000. The role of iron on nutrient availability and trophic status of Black Hills reservoirs. Annual Report to the U.S. Bureau of Reclamation, Bismark, North Dakota .

Chipps, S.R., D.E. Hubbard, N.J. Haugerud, K.B. Werlin, and K.A. Powell. 2000. Evaluation of the biological integrity of floodplain wetlands in the Upper Missouri River Basin. Annual Report to the Environmental Protection Agency, EPA IAG Number DW-14-93890101-0, NHEERL, Mid-Continent Ecology Division, Duluth, Minn..

Conway, C. J., and C. Kirkpatrick. 2001. Population status, detection probability, and effects of fire on Buff-breasted Flycatchers. Final Report, Arizona Game and Fish Department, Phoenix, AZ. 73 pp. .

Conway, C. J., and J. C. Simon. 2001. Development and evaluation of standardized survey protocols for monitoring Burrowing Owl populations in North America. Final Report, U.S. Fish and Wildlife Service, Denver, CO. 38 pp. .

Conway, C.J., C. Sulzman, and B.E. Raulston. 2001. Population trends, distribution, and monitoring protocols for California Black Rails. Final Report, Arizona Game and Fish Department, Phoenix. 46 pp..

Conway, C.J., and J.P. Gibbs. 2001. Factors influencing detection probablity and the benefits of call-broadcast surveys for monitoring marsh birds. Final Report submitted to U.S. Fish and Widlife Service, Patuxent Research Center, Laurel, MD, 58pp.

Conway, C.J., and M.D. Smith. 2000. Burrowing owl conservation on golf courses in North America. Annual Report, U.S. Golf Association, Stillwater, OK 14pp.

Costello, C.M., D.E. Jones, K.A. Green Hammond, R.M. Inman, K.H. Inman, B.C. Thompson, R.A. Deitner, and H.B. Quigley,. 2001. A study of New Mexico black bear ecology with models for population dynamics and habitat suitability. Final Report, Federal Aid in Wildlife Restoration Project W-131-R, New Mexico Department of Game and Fish, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces; Hornocker Wildlife Institute, Bozeman, Montana; and Ecological Modeling, Albuquerque, New Mexico. 197pp..

Coughlin, W. D., A. A. Echelle, R. A. Van Den Bussche, L. M. Cofer, and W. L. Fisher. 2001. Genetic structure of spotted bass in Oklahoma. Final Report. Oklahoma Department of Wildlife Conservation, Oklahoma City, OK. 23 pp. .

Craig, A. J., and A. V. Zale. 2001. Effects of bank stabilization structures on fish and their habitat: a literature review. Report to Omaha District, U.S. Army Corps of Engineers and Governor's Upper Yellowstone River Task Force. 27 pages..

Currie, Leigh K. and David C. Fulton. 2001. Managing Minnesota's Fishing Resource: A review of angler and resort owner attitudes toward bag limits. Minnesota Department of Natural Resources. .

Dougherty, Erin M. and David C. Fulton. 2001. Deer management in Cuyahoga Valley National Park: A study of local residents attitudes. Cuyahoga Valley NP, Midwest Region, National Park Service..

Durham, S., and A. D. Afton. 2001. Nesting ecology of mottled ducks on agricultural lands in southwest Louisiana. Annual Progress Report. 26pp..

Eckerlin, G.E., K.E. Mills, and M.B. Bain. 2001. Fish support function of submerged aquatic vegetation in the Hudson River. Annual Report by the New York Cooperative Fish and Wildlife Research Unit to the Cornell Center for the Environment, Ithaca, New York, USA. 13 pages (exclusive of tables, figures, and data appendices)..

Edwards,J.W., W.M.Ford, and P.B. Wood. Jan 2001. Survey of forest bat communities on the Monongahela National Forest and Westvaco Wildlife and Ecosystem Research Forest. Final report to USDA Forest Service, Monongahela National Forest Contract No. 21-0110799. 119pp..

Ensign, W.E. and R.J. Neves. 2000. Re-survey of the James spinymussel (Pleurobema collina) population in the South Fork Potts Creek, Monroe County, Weest Virginia. Final Report, U.S. Fish and Wildlife Service, Elkins, WV. 18 pp..

Fisher, W. L., and M. S. Gregory. 2001. The Oklahoma Gap Analysis project. Final Report. U. S. Geological Survey, Biological Resources Division, Moscow, ID. 91 pp. + appendicies..

Frater, B., and D.L. Parrish. 2001. Relating juvenile walleye distributions to the sportfishery of Lake Champlain. Final Report Research Work Order #26. U.S. Geological Survey and Vermont Department of Fish and Wildlife. .

Fuller, T. K., and P. R. Sievert, editors. 2001. Carnivore ecology, behavior, and conservation. Departmental Report Series Number 3, Department of Natural Resources Conservation, University of Massachusetts, Amherst, Massachusetts, USA..

Galat, D. L., M. L. Wildhaber and D. J. Dieterman. 2001. Spatial patterns of physical habitat. Volume 2. Population structure and habitat use of benthic fishes along the Missouri and lower Yellowstone rivers. U.S. Geological Survey, Cooperative Research Units, University of Missouri, 302 ABNR Building, Columbia, MO. 91pp..

Gipson, P. S., B. E. Flock, R. D. Applegate, M. W. McCoy, and K. E. Kemp. 2001. Macro and microhabitat use by ring-necked pheasants in northwestern Kansas. Final report to the Kansas Department of Wildlife and Parks..

Gipson, P. S., J. S. Johnson, and J. S. Pontius. 2001. Scent stations: a non-invasive tool to determine habitat selection and use of primitive roads by mammals. Final report to the United States Army, Fort Riley, Kansas..

Grand, J. B., R. M.Anthony, and T. F. Fondell. Renesting, nest depredation, and gosling survival of dusky Canada geese on the Copper River Delta, Alaska. Annual Progress Report..

Griffith, B. 2001. Movement, activity, behavior, and habitat use of Dall's sheep in relation to military overflights in interior Alaska. Annual report for 2000, RWO 99, to the Yukon Charley National Park, National Park Service, Fairbanks, AK. 1 pp. .

Griffith, B., A. Gunn, D. Russell, K. Kielland, and S. A. Wolfe. 2000. Bathurst Calving Ground Studies: Influence of nutrition and human activity on calving ground location. Final Report to West Kitikmeot Slave Study Society, Yellowknife, Northwest Territories, Canada. 118 pp. .

Hamazaki, T., K.G. Boykin, and B.C. Thompson. 2001. Incorporating landscape context in conservation planning models for Fort Bliss Military Reservation, New Mexico and Texas. Research Completion Report to Fort Bliss Directorate of Environment, Research Work Order No. 32, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 66pp..

Helfrich, L.A. and R.J. Neves. 2001. Stream riparian restoration video. Half-hour video to U.S. Fish and Wildlife Service, Asheville, NC..

Helfrich, L.A., J. Parkhurst, and R.J. Neves. 2001. The control of burrowing crayfish in ponds. Virginia Cooperative Extension Publication 420-253. 3 pp..

Helfrich, L.A., R.J. Neves, and J. Parkhurst. 2001. Liming acidified lakes and ponds. Virginia Cooperative Extension Publication 420-254. 6pp..

Homyack, J., D. J. Harrison, and W. B. Krohn. 2001. Effect of precommercial thinning on selected wildlife species with special emphasis on snowshoe hare. Pages 41-43 IN Cooperative Forestry Unit 2000 Annual Report, Maine Agricultural and Forest Experiment Station Miscellaneous Report 424, University of Maine, Orono..

Hughes, S. G. 2000. Practical tests of soy-based diets for Tilapia. Maryland Aquafarmer (Maryland Sea Grant Newsletter) 2000(04):7..

Hughes, S. G. 2001. Blue crab mortality rates in and characteristics of crab shedding facilities on the Lower Eastern Shore of Maryland. Completion Report submitted to Maryland Department of Natural Resources. 5pp..

Hughes, S. G. 2001. Low-cost recirculating system for eels. Maryland Aquafarmer (Maryland Sea Grant Newsletter) 2001(3):7..

Jennings, C. A., J. L. Shelton, and G. L. Looney. 2001. Culture Techniques and Ecological Studies of the Robust Redhorse Moxostoma robustum: assessment of reproductive and recruitment success, incubation temperatures and flows, and gravel quality and percent fine sediment on hatching success. Annual Report (Project 25-21-RC295-387) prepared for Georgia Power Company. 55 p..

Jones, J. and R.J. Neves. 2001. Release of endangered juvenile mussels in Tennessee and Virginia. Ellipsaria 3(1):18..

Juni, S., and C. Berry. 2001. Biodiversity in the Middle Skunk Creek Wetland Mitigation Site. Seasonal Report - Spring and Fall 2000 for Agreement Number 98-0387 to City of sioux Falls., SD. .

Kalita, P., M. Hirschi, L. Schieferecke, S. Bhuyan, P. Woodford, and P. Gipson. 2000. WEPP model measures runoff and erosion on military training lands. Resource: engineering and technology for a sustainable world. December: 13-14..

Kerans, B. L., and A. V. Zale. 2001. The ecology of Myxobolus cerebralis. Page 53 in Proceedings of the 7th Annual Whirling Disease Symposium. Whirling Disease Foundation, Bozeman, Montana..

Koford, R. 2001. Bird Survey of the Kellerton Bird Conservation Area. Report submitted to the Wildlife Bureau and Wildlife Diversity Program, Iowa Department of Natural Resources..

Koford, R. 2001. Effect of habitat restoration on grassland birds in the southern part of the Northern Tallgrass Prairie Ecoregion. Progress Report, Research Work Order 50, Submitted to U.S. Fish and Wildlife Service and Wildlife Bureau, Iowa Department of Natural Resources. .

Kowalski, D. and E. Bergersen. 2001. Preliminary investigations on the efficacy of chemical control of Tubifex tubifex on the incidence of whirling disease in Colorado hatcheries. Proceedings of the 7th Annual Whirling Disease Symposium, a Decade of Discovery: 71-72..

Krementz, D.G., and J.J. Jackson. 2000. Woodcock in the Southeast. Natural history and management for landowners. Univ. Georgia Press. Georgia Cooperative Extension Service..

Krinke, M., J. K. Herny, B. Vondracek and 13 others. Economic Analysis of Agriculture for Multiple Benefits. Final Report submitted to the Legislative Committee for Minnesotas Resources, St. Paul.

Krohn, W. B., and J. R. Moring (editors). 2001. Maine Cooperative Fish and Wildlife Research Unit - 2000 Report to Cooperators. Maine Cooperative Fish and Wildlife Research Unit, Univeristy of Maine, Orono, Maine. 50 pp..

Kwak, T.J. and W.E. Pine III. 2001. A predator beneath us: exotic flathead catfish on the coastal plain. Friend of Wildlife: Journal of the North Carolina Wildlife Federation 49(3): 14-15. .

Layzer, J.B. 2000. Book Review - Instream flow protection: Seeking a balance in western water use. By D.M. Gillilan and T.C. Brown. Island Press, Washington, DC. 1997. 410pp. In: Fisheries 25(1): 42..

Li, H.W., R.L. Beschta, J.B. Kauffman, J.L. Li, B.A. McIntosh, P.A. McDowell. 2000. Hydrologic, geomorphic and ecological connectivity in Columbia river Watersheds: Implications for endangered salmonids. Completion report to the EPA Star Program, R82-4774-010, 112 Pages..

Loftin, C.S., M. Bank, J. Hagan, and D. Siegel. 2001. Literature synthesis of the effects of forest management activities on riparian and in-stream biota of New England. UMaine CFRU Research Report 01-01 and Maine Agricultural and Forest Experiment Station Misc Report 425. 78 pp..

Loftin, C.S., M.S. Bank, J. Hagan, and D. Siegal. 2000. Wildlife use of forested riparian areas in New England. Abstract, University of Maine Cooperative Forestry Research Unit Forestry & the Riparian Zone Conference, 26 October 2000, Orono, ME..

Loftin, C.S., and M. Bank. 2001. Literature synthesis of the effects of forest management activities on riparian biota of Northeastern North America. CFRU Research Note 01-01:1-4..

Loucks, D.P., M.B. Bain, W.A. Brown, W.R. Lynn, and T.S. Steenhuis. 2000. Development and Implementation of Decision Support Systems for Predicting Economic and Ecologic Impacts of Alternative Land and Water Management Policies. Final Report by the Cornell Center for the Environment to the National Science Foundation for grant DEB-9726860..

Loukmas, J.J., D.T. Mayack, and M.E. Richmond. 2000. Organochlorine and metal contaminant levels in Hudson River mammals. Annual Report to the New York State Department of Environmental Conservation. 56 pp..

Magoulick, D.D. and R.J. DiStefano. 2001. Potential impact of the introduced crayfish Orconectes neglectus on native crayfish in the Spring River drainage. June 2001. Final Report prepared for the U.S. Fish and Wildlife Service, Columbia, Missouri..

Malecki, R. 2000. Atlantic Flyway Cooperative Canada goose management and research program for 2002-2007. Project document compiled for the Atlantic Flyway Waterfowl Council and Technical Section. 20 pp..

Mather, M.E , M. P. Carey, A. Norris. 2001. Patterns and processes for freshwater fish distribution in northeastern National Parks: inventory, monitoring, and a model of governing processes Annual Report to the National Park Service.

Mather, M.E. 2001. Hotspots and pits: assessing basin-wide mechanisms for success and failure of juvenile Atlantic salmon sites throughout the Connecticut River basin. Final Report to the U.S. Forest Service..

Mather, M.E., and K. H. Ferry. 2001. Diet analysis and bioenergetics modeling of striped bass, Morone saxatilis, along the Massachusetts coast. Annual Report to the Massachusetts Division of Marine Fisheries.

Mills, K.E. and M.B. Bain. 2000. Fish support function of submerged aquatic vegetation in the Hudson River. Progress Report by the New York Cooperative Fish and Wildlife Research Unit to the Center for the Environment, Ithaca, New York, USA. 11 pages (exclusive of tables, figures, and data appendices)..

Miranda, L.E. 2000. A review of guidance and criteria for managing reservoirs and associated riverine environments to benefit fish and fisheries. World Commission on Dams Thematic Reviews, World Commission on Dams Secretariat, Cape Town, South Africa. .

Mitchell, M. S. Integrated research on landscape scales. Auburn Forestry and Wildlife Sciences Alumni Association Newsletter. Fall 2001.

Moring, John R., B.C. Le, and J. Stone. 2001. Fish resources of Acadia National Park, Mount Desert Island, Maine. Final Report to the National Park Service, Acadia National Park, Bar Harbor, Maine. 92p., plus appendices..

Nesnow, C., and J. E. Hightower. 2001. Distribution, abundance and condition of American eels in the White Oak River basin, North Carolina. Annual report to U. S. Forest Service. North Carolina Cooperative Fish and Wildlife Research Unit, NCSU, Raleigh, NC..

Nishida, C., S. DeStefano, and C. Boal. 2001. Status of Swainson's hawks in southeastern Arizona. Arizona Game and Fish Dept., Final Report, Project I98013. 38pp..

Olsen, J.R., and D.L. Parrish. 2001. Bioenergetics of age-1 Atlantic salmon in Vermont tributaries. Final Report. National Marine Fisheries Service, NOAA Grant No. NA96FA0256..

Overton, A.S., F.J. Margraf, J.C. Griffin, and E.B. May. 2000. Changes in feeding habits of striped bass in the Chesapeake Bay: A health Assessment. Final Report to the Maryland Department of Natural Resources. Annapolis, Maryland. Maryland Cooperative Fish and Wildlife Research Unit, University of Maryland Eastern Shore, Princess Anne, MD..

Parker, N.C., T.E. Boal, L. Van Heuklon, J. Wobbenhorst. 2001. Full study plan for vertebrate and vascular plant inventory of the Chihuahuan Desert Network..

Peterson, J., J. Dunham, P. Howell, S. Bonar, R. Thurow. 2001 Interim protocol for determining bull trout presence. Western Division of the American Fisheries Society..

Peterson, J.T. and J. Dunham. 2001. Combining inferences from models of capture efficiency, detectability, and suitable habitat to classify landscapes for conservation of threatened bull trout, Salvelinus confluentus. Final Report to U.S. Fish and Wildlife Service, Aquatic Resources Division, Lacey, WA..

R. W. Van Kirk, and A. V. Zale. 2000. Preface: Aquatic resources of the Henry's Fork watershed. Intermountain Journal of Sciences 6:103-105..

R.F. Thurow, J.T. Peterson, and J.W. Guzevich 2001. Development of Bull Trout Sampling Protocols. Final Report to U.S. Fish and Wildlife Service, Aquatic Resources Division, Lacey, WA. .

Ribic, C. A. 2001. Regional evaluation of area sensitivity in grassland birds workshops I and II. Final report, USGS BRD, Leetown Science Center, Kearneysville, WV. .

Roby, D.D., P.G.R. Jodice and K.R. Turco. 2000. Diet Composition, Reproductive Energetics, and Productivity of Seabirds Damaged by the EXXON VALDEZ Oil Spill. Restoration Project Final Report to EXXON VALDEZ Oil Spill Trustee Council..

Roell, M., D. Humburg, T. Russell, T. Grace, V. Travnichek and D. Galat. 2001. Information needs for living resources management in a multipurpose system: the Missouri River and its floodplain. White Paper prepared for Missouri Department of Conservation, Jefferson City. 10pp..

Ryce, E. K. N., A. V. Zale, and E. MacConnell. 2001. The effect of initial exposure to Myxobolus cerebralis on the development of resistance to reinfection in rainbow trout. Final report to the Whirling Disease Initiative of the National Partnership on the Management of Wild and Native Cold Water Fisheries, Bozeman, Montana. 10 pages..

Ryce, E. K. N., E. MacConnell, A. V. Zale, and M. A. Adkison. 2001. Effect of initial exposure to Myxobolus cerebralis on the development of resistance to reinfection in rainbow trout. Pages 37-38 in Proceedings of the 7th Annual Whirling Disease Symposium. Whirling Disease Foundation, Bozeman, Montana..

Ryce, E. K. N., E. MacConnell, and A. V. Zale. 2001. Effects of size versus age on the development of whirling disease in rainbow trout. Pages 35-36 in Proceedings of the 7th Annual Whirling Disease Symposium. Whirling Disease Foundation, Bozeman, Montana..

Sawyer, H, and F. Lindzey. 2001. Sublette mule deer study. Final Report. Wyoming Cooperative Fish and Wildlife Research Unit, Laramie..

Sawyer, H., and F. Lindzey. 2000. Jackson Hole Pronghorn study. Wyoming Cooperative Fish and Wildlife Research Unit, Laramie..

Sawyer, H., and F. Lindzey. 2000. Ecology of sympatric mule deer and white-tailed deer in riparian communities of southeast Wyoming. Final Report. Wyoming Cooperative Fish and Wildlife Research Unit, Laramie..

Schmidly, D.J. , R.J. Baker, and N.C. Parker. 2001. Texas Parks and Wildlife for the 21st Century: Geospatial Analysis Products. Project completion report, Texas Parks and Wildlife, Austin, Texas..

Schmidly, D.J., R.J. Baker, and N.C. Parker. 2001. Texas Parks and Wildlife for the 21st Century: Compiled References. Project completion report, Texas Parks and Wildlife, Austin, Texas..

Schmidly, D.J., R.J. Baker, and N.C. Parker. 2001. Texas Parks and Wildlife for the 21st Century: Geography of biodiversity and land conversion in Texas. Project completion report, Texas Parks and Wildlife, Austin, Texas..

Schmidly, D.J., R.J. Baker, and N.C. Parker. 2001. Texas Parks and Wildlife for the 21st Century: Rethinking the future. Project Completion Report, Texas Parks and Wildlife, Austin, TX..

Schramm, H.L., Jr., J.R. Davis, L.E. Miranda, S.W. Raborn, D.W. Simons. and T. Will. 2001. Movement, spawning, and recruitment of Gulf coast walleye and status of the fish community in Luxapallila Creek, Mississippi. Final Report. U.S. Army Corps of Engineers, Mobile District, Mobile, Alabama. .

Sheaffer, S. and R. Malecki. 2000. Evaluation of survey and band recovery data for monitoring annual changes in harvest rates and estimating the size and composition of the harvest of Canada geese in the Atlantic Flyway. Final Report to the Atlantic Flyway Waterfowl Council's Technical Section. 14 pp..

Simons, T.R., L.L. Bailey, and K.H. Pollock. 2001. Evaluation of salamander habitat associations and population monitoring techniques in Great Smoky Mountains National Park. 2000 Annual Report..

Sipher, C., and E. Bergersen. 2001. The effects of whirling disease on growth and survival of Snake River cutthroat and Colorado River rainbow trout fingerlings. Proceedings of the 7th Annual Whirling Disease Symposium, a Decade of Discovery: .

Smith, C.R., S.D. DeGloria, M.E. Richmond, S.K. Gregory, M. Laba, S.D. Smith, J.L. Braden, E.H. Fegraus, J.J. Fiore, E A. Hill, D.E. Ogurcak, J.T. Weber. 2001. The New York Gap Analysis Project Final Report. New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Cornell University, Ithaca, NY..

Smith, C.S., S.D. DeGloria, M.E. Richmond, S.K. Gregory, M. Laba, S.D. Smith, J.L. Braden, W.P. Brown, E.A. Hill. 2001. An Application of Gap Analysis Procedures to Facilitate Planning for Biodiversity Conservation in the Hudson River Valley, Final Report, Part 1: Gap Analysis of the Hudson River Valley and Part 2: Atlas of Predicted Ranges for Terrestrial Vertebrates in the Hudson River Valley. New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Cornell University, Ithaca, NY. 535 pp..

Stash, S., R. G. White and D. Fuller. 2001. Distribution, relative abundance, and habitat associations related to irrigation diversion dams. Final Report: U.S. Bureau of reclamation, Billings, Montana..

Tejan, E. C., and W. L. Fisher, W. L. 2001. Development of a stream fisheries management information system for Oklahoma. Final Report. Oklahoma Department of Wildlife Conservation, Oklahoma City, OK. 46 pp..

The evolution, status, distribtuion, ecology, and management of a vanishing aviafauna..

The evolution, status, distribution ecology and management of endemic Hawaiian birds: A vanishing avifauna.

Thompson, B. 2001. Mexican Gray Wolf Recovery Program Interagency Management Advisory Group (IMAG) review. Special Technical Assistance Report to U.S. Fish and Wildlife Service, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 6pp..

Thompson, B. C. and M. L. Munson-McGee, technical compilers. 2000. Gila counterpoint: Another diagnosis for the ailing Gila Wilderness. New Mexico Chapter of The Wildlife Society, Albuquerque, New Mexico. 27pp..

Thompson, B., and C. Moon. 2001. Promotion and employment mobility survey. Special Technical Assistance Report to New Mexico Department of Game and Fish, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 9pp..

Thompson, B.C., and K. Boykin. 2000. Approach to regional animal modeling in the southwest. U.S. Department of the Interior, U.S. Geological Survey, Gap Analysis Bulletin. 9:27-28..

Van Why, K. R., R. D. Applegate, T. T. Cable, and P. S. Gipson. 2001. Survey of wild turkey hunters: experiences, opinions, and satisfactions. Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Report 874. 25 pp..

Vaughan, M.R., S. Klenzendorf, A. Bridges, D. Lee, D. O'Neill, and C. Olfenbuttel. 2000. Sixth Annual Report of the Cooperative Alleghany Bear Study. Report to the Virginia Department of Game and Inland Fisheries. 28pp..

Vest, J. L., R. M. Kaminski, A. D. Afton, L. M. Pote, and F. J. Vilella. 2001. Parasites in lesser scaup in the Mississippi flyway. Progress Report. 7pp..

Vest, J. L., R. M. Kaminski, A. D. Afton, L. M. Pote, and F. J. Vilella. 2001. Parasites in lesser scaup in the Mississippi flyway. Progress Report. 8pp..

Vilella, F.J.. 2001. Caribbean islands look up to the Atlantic Coast Joint Venture. Birdscapes/Winter 2001:28-29..

Weber, R. J., and R. Carline. 2000. Effects of electrofishing on survival and growth of wild brown trout (Salmo trutta) from central Pennsylvania streams. pages 215-223, in D. Schill, S. Moore, P. Byroth, and B. Hamre, editors, Wild Trout VII Management in the new millenium: are we ready?.

Webster, C. M., and S. DeStefano. 2001. Distribution and habitat of greater roadrunners in the metropolitan area of Tucson, Arizona. Arizona Game and Fish Dept., Final Report, Project U97004. 41pp. .

Welsh, S.A. 2001. Annual tag-encounter and annual exploitation rates of Atlantic striped bass estimated from tag recoveries (1987-2000). Report to the ASMFC Striped Bass Tagging Committee, Striped Bass Stock Assessment Commitee, and Striped Bass Technical Committee. 45 pp.

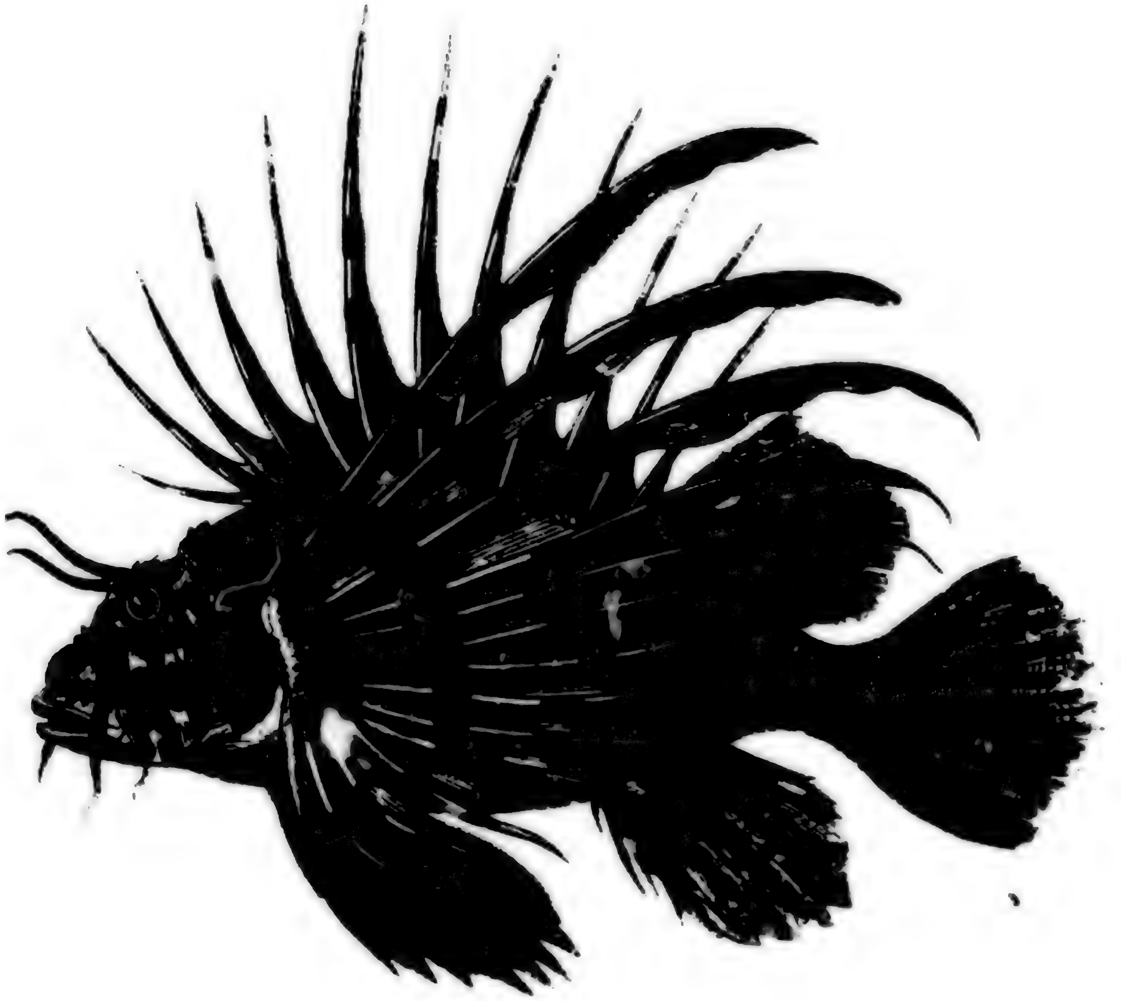
Will, T. A., T. R. Reinert, and C. A. Jennings. 2001. Assessment of spawning sites and reproductive status of striped bass, Morone saxatilis, in the Savannah River Estuary. Final Project for Project 10-21-RR251-144. Prepared for Georgia Ports Authority. 95 p..

Wolfe, S. A., B. Griffith, R. D. Cameron, and R. G. White. 2000. Habitat selection by calving caribou of the Central Arctic Herd, 1980-95: Shifts in distribution and habitat quality. http://www.taiga.net/sustain/lib/sustain2/habitat/index.html.

Wood,P.B. Jan 2001. Characteristics of Allegheny woodrat (Neotoma magister) habitat in the New River Gorge National River, West Virginia. Final Project Report submitted to National Park Service, Glen Jean, WV. 45pp (with appendices)..

Wood,P.B., J.W. Edwards, and C.A. Weakland. Jan 2001. Terestrial vertebrate (breeding songbird, raptor, small mammal, herpetofaunal) populations of forested and reclaimed sites. Final report submitted to EIS Steering Committee. 149pp..

Young, K.E., Q.H. Hodgson, D. Browning, J.L. Lanser, B.C. Thompson, and R.Valdez. 2001. Determination of habitat suitability for aplomado falcons on public lands in southern New Mexico. Project Progress Report (March 2000-May 2001), Research Work Order No. 31, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, NM. 23pp. .



Theses and Dissertations of Unit Graduate Students

Ahlm, M. S. May 2001. Distribution and demographics of Rocky Mountain bighorn sheep (Ovis canadensis canadensis) in the San Francisco River drainage, New Mexico. M.S. Thesis, New Mexico State University, Las Cruces. 57pp.

Arterburn, J. E. 2001. Population characteristics and sampling methods of catfish for the James and Big sioux Rivers. M. S. Thesis, South Dakota State University, Brookings.

Beck, K.M. May 10, 2001. Development of an algal diet for rearing juvenile freshwater mussels. M.S. Thesis, Virginia Tech. 58 pp.

Bowman, S. W. 2001. American shad and striped bass spawning migration and habitat selection in the Neuse River, North Carolina. MS Thesis, North Carolina State University.

Burroughs, J. P. Evaluation of stream fisheries management programs and development of a model program. M.S. Thesis, Oklahoma State University, Stillwater. 76 pp.

Checkett, J. M. 2001. The true metabolizable energy of natural waterfowl foods subjected to periods of flooding and nonflooding. MS Thesis, University of Missouri, Columbia. 133pp.

Coluccy, J. M. 2001. Reproductive ecology, bioenergetics, and experimental removal of local giant Canada geese (Branta canadensis maxima) in central Missouri. PhD Dissertation, University of Missouri, Columbia. 260pp.

DeJong, J.R. 2001. Landscape fragmentation and grassland patch size effects on non-game grassland birds in xeric mixed-grass prairies of western South Dakota. M.S. Thesis, South Dakota State University, Brookings.

Dieterman, D. J. 2000. Spatial patterns in phenotypes and habitat use of sicklefin chub, Macrhybopsis meeki, in the Missouri and lower Yellowstone rivers. PhD Dissertation, University of Missouri, Columbia. 185pp.

Dougherty, E. 2001. Wildlife values, gender and conflict over the acceptance of lethal deer control in the Cuvahoga Valley National Park, M.S. Thesis. University of Minnesota, St. Paul. 49 pp.

Eggebo, S.L. 2001. Ring-necked pheasant and passerine abundance in conservation reserve program grasslands of differing age-classes and cover types in Eastern South Dakota, 1998-2000. M.S. Thesis, South Dakota State University, Brookings.

Ernst, A.E. 2001. Changes in black-tailed prairie dog towns on the Texas panhandle determined by a geographic information system.

Feirer, S. T. 2000. Nesting ecology of ardeids, including cattle egrets, and restoration on Ralstin Island in northcentral Oklahoma. M. S. Thesis, Oklahoma State University, Stillwater. 91 pp.

Fox, D. A. 2001. Gulf sturgeon migratory patterns, habitat utilization and aspects of reproductive biology in the Choctawhatchee River system, Alabama and Florida. Ph.D. Dissertation, North Carolina State University.

Fryda, D. 2001. A survey of the fishes and habitat of the White River, South Dakota. M. S. thesis, South Dakota State University, Brookings.

Gauthier, K.J., Sr. August 2001. Relations between angler harvest, effort, and abundance of fishes in Escanaba Lake, Wisconsin. M.S. thesis. University of Wisconsin - Stevens Point. 98 p.

Gray, R.M. 2001. Digestibility of foods and anthropogenic feeding of black bears in Virginia. MS Thesis, Virginia Tech. 100 pp.

Hatten, I. S. 2000. The effects of urbanization on raccoon population demographics, home range, and spatial distribution patterns. PhD thesis, University of Missouri, Columbia. 105pp.

Horton, T. B. 2000. Habitat use and movement of spotted bass in Otter Creek, Kansas. Master's thesis. Kansas State University.

Huddleston-Lorton, R. December 2000. Habitat changes and visual obscurity in a low elevation population of Rocky Mountain bighorn sheep (Ovis canadensis canadensis) in southwestern New Mexico. M.S. Thesis, New Mexico State University, Las Cruces. 29pp.

Hyler, R. G. 2000. Responses of anglers to a differential harvest regulation on three black bass species in Skiatook Lake, Oklahoma. M. S. Thesis, Oklahoma State University, Stillwater. 102 pp.

Isaak, D. J. 2001. A landscape ecological view of trout populations across a rocky Mountain watershed. Doctoral dissertation. University of Wyoming, Laramie

Jeffries, A. P. 2000. Evaluation of supplemental forages and prescribed burning for white-tailed deer in the Ozarks of Missouri. MS Thesis, University of Missouri, Columbia. 121pp.

Jimenez, N.D. December 2000. Evaluation of the effects of camping on vegetation and bird communities on the Little Pend Oreille National Wildlife Refuge, Washington. M.S. Thesis, New Mexico State University, Las Cruces. 32pp.

Juni, Sara. 2001. Assessment of wetland in south Dakota. M. S. thesis, South Dakota State University, Brookings.

Kelsey, K.W. 2001. Avian community structure associated with woodland habitats in fragmented and unfragmented landscapes in western South Dakota. M.S. Thesis, South Dakota State University, Brookings.

Kirby, D. 2001. An assessment of the channel catfish population in the Big Sioux River, South Dakota. M. S. Thesis, South Dakota State University, Brookings.

Liao, H. Assessment of diet and consumption dynamics of the adult piscivorous fish community in Spirit Lake, Iowa. Ph.D. Dissertation, Iowa State University.

Lipsey, T. S. B. 2001. Using elevation, channel slope, and stream width to predict the occurrence of native warmwater fish species in the North Platte River drainage in Wyoming. Master's thesis. University of Wyoming, Laramie.

Livingston, T. R. 2001. Coprophagy: an ecological investigation of the consumption of mammalian carnivore feces. M. S. Thesis, Kansas State University. 45 pages.

Logan, Brian D. Avian Community and Nesting Productivity Relative to Cattle Grazing in North-central Montana. University of Monana. 2001

Long, J. M. 2000. Population dynamics and interactions of three black bass species in an Oklahoma reservoir as influenced by environmental variability and a differential harvest regulation. Ph. D. Dissertation, Oklahoma State University, Stillwater. 123 pp.

Lukacs, P. M. 2001. Estimating density of animal populations using trapping webs: evaluation of web design and data analysis. Thesis, Colorado State University, Fort Collins, Colorado, USA.

May, S.M. 2001. Landscape characteristics affecting habitat use and productivity of avifauna on stock ponds in western South Dakota. M.S. Thesis, South Dakota State University, Brookings.

McClure, Mark F. 2001. Energy, fractal movement paths, and scale-dependent habitat relations of urban and rural mule deer. Ph.D. Dissertation, Utah State University, 146 pages.

McGarvey, D. J. 2001. Identification of habitat restoration effects on cold-water, limestone streams, using multimetric indices. M.S. Thesis. The Pennsylvania State University, University Park. 124 pp.

Mullner, S. A. 2001. Techniques for watershed-scale trout management. Doctoral dissertation. University of Wyoming, Laramie.

O'harra, D. A. 2001. Migratory shorebirds and wetland management at Pea Island National Wildlife Refuge, North Carolina. M.S. Thesis. North Carolina State University.

Overman, Nathanael C. 2001. Bioenergetics and stable isotope analyses of walleye in Lake Champlain. M.S. Thesis. University of Vermont, VT, USA. 153p.

Remshardt, W. J. 2001. Effects of streamflow variation on smallmouth bass habitat in an alluvial stream. M. S. Thesis, Oklahoma State University, Stillwater. 68 pp.

Reynolds, C. Avian community ecology and forest management practices in pine-hardwood ecosystems of north-central Mississippi. Thesis, Mississippi State University, Mississippi State, MS.

Rivieccio, M. December 2000. Validation of predictive habitat modeling for the Colorado chipmunk (Tamias quadrivittatus) in southern New Mexico. M.S. Thesis, New Mexico State University, Las Cruces. 45pp.

Rucker, A. D. 2001. Conversion of tall fescue pastures to tallgrass prairie in southeastern Kansas: Small mammal responses. M.S. Thesis, Kansas State University. 56 pages.

Sammler, J.E. 2001. Population trends of tundra-nesting birds in Churchill, Manitoba: Potential effects of increasing lesser snow goose (Chens caerulescens caerulescens) populations. M.S. Thesis, University of Minnesota, St. Paul, MN. 60pp

Sanders, F. Brood reduction and the insurance hypothesis as explanations for asynchronous hatching in red-cockaded woodpeckers. M.S. Thesis. Clemson University. 84pp.

Saracco, J. F. 2001. Fruit neighborhoods, and birds and plants interactions in north central Puerto Rico. Ph.D. Dissertation. North Carolina State University.

Scanlon, B. P. 2000. The ecology of the Arctic char and the Dolly Varden in the Becharof Lake drainage, Alaska. M.S. thesis, University of Alaska Fairbanks. 103 pp.

Schrader, T.S. 2001. Comparison of vegetation classification using various clustering levels. Masters thesis. Texas Tech University, Lubbock, TX. 123 pp.

Schrank, S. J. 2000. Population characteristics of bighead carp Hypophthalmichthys nobilis larvae and adults in the Missouri River and interspecific dynamics with paddlefish Polyodon spathula. Master's thesis. Kansas State University.

Shearer, J. 2001. Temporal change in fish communities and modification of the index of biotic integrity for the James River of the Dakotas. M. S. Thesis, South Dakota State University, Brookings.

Silapaswan, C. S. 2000. Land cover change on the Seward Peninsula: The use of remote sensing to evaluate the potential influences of climate change on historical vegetation dynamics. M.S. thesis, University of Alaska Fairbanks. 68 pp.

Snyder, P. R. 2000. Assessment of activity transmitters based on behavioral observations of coyotes, bobcats, and raccoons. M. S. Thesis, Kansas State University. 121 pages.

Stephens, T.J. March 2001. Effects of riparian area management on stream habitat and fish communities in central and southwest Wisconsin. M.S. thesis. University of Wisconsin - Stevens Point. 177 p.

Ward, D. Efects of reduced water temperature on swimming performance and predation vulnerability of age-0 flannelmouth sucker, M. S. Thesis, University of Arizona, Tucson.

Webb, R. E. 2000. Limitations in essential amino acid nutrition in cotton rats (Sigmodon hispidus) in Oklahoma. M. S. Thesis, Oklahoma State University, Stillwater. 102 pp.

Weber, R. J. 2000. Effects of electrofishing on survival and growth of wild brown trout (Salmo trutta) from central Pennsylvania streams. M.S. Thesis. The Pennsylvania State University, University Park. 55 pp.

Weyers, R. S. 2000. Growht and Survival of Larval Robust Redhorse and Silver Redhorse (Catostomidae) Exposed to Pulsed, High-velocity, Water. Master of Science Thesis, University of Georgia

Wolfe, S. A. 2000. Habitat selection by calving caribou of the Central Arctic Herd, 1980-95. M.S. thesis, University of Alaska Fairbanks. 83 pp.

Wood, D. Multi-resolution foraging assessment of the Red-cockaded Woodpecker in Bienville National Forest, Mississippi. Dissertation, Mississippi State University, Mississippi State, MS.

Young, B. 2001. Intraspecific variation among emerald shiners of the Missouri River. Ph.D. Dissertation, South Dakota State University, Brookings.

Zakrajsek, E. 2001 Development of a bird-avoidance model for naval air facility El Centro, California, M.S. Thesis, Utah State University, 96 pages.

Zhang, X. 2001. Modeling stand-level canopy maintenance respiration of black spruce ecosystems in Alaska: Implications for spatial and temporal scaling. M.S. thesis, University of Alaska Fairbanks. 40 pp.

Zweig, L. D. 2000. Effects of deposited sediment on stream benthic macroinvertebrate communities. MS thesis, University of Missouri, Columbia. 148pp.

Scientific Publications of Non-Student Affiliates

Azerrad, J. M. and C. H. Nilon. 2001. Avian community characteristics of urban greenspaces in St. Louis, Missouri. Pages 487-503 in J. M. Marzluff, R. Bowman and R. Donnelly (eds.), Avian ecology and conservation in an urbanizing world. Kluwer Academic, Boston, MA..

Bak, J. M., K. G. Boykin, B. C. Thompson, and D. L. Daniel. 2001. Distribution of wintering ferruginous hawks (Buteo regalis) in relation to black-tailed prairie dog (Cynomys ludovicianus) colonies in southern New Mexico and northern Chihuahua. Journal of Raptor Research 35:124-129..

Block, W. M., A. B. Franklin, J. P. Ward, Jr., J. L. Ganey and G. C. White. 2001. Design and implementation of monitoring studies to evaluate the success of ecological restoration on wildlife. Restoration Ecology 9:293-303..

Bowden, D. C., G. C. White, and R. M. Bartmann. 2000. Optimal allocation of sampling effort for monitoring a harvested mule deer population. Journal of Wildlife Management 64:1013-1024..

Boyd, D.K., S.H. Forbes, D.H. Pletscher, and F.W. Allendorf. 2001. Identification of Rocky Mountain gray wolves. Wildlife Society Bulletin 29(1):1-8. .

Brown, K.M., R.M. Erwin, M.E. Richmond, P.A. Buckley, J.T. Tanacredi, and D. Avrin. 2001. Managing birds and controlling aircraft in the Kennedy airport-Jamaica Bay Wildlife Refuge complex: the need for hard data and soft opinions. Environmental Management 28:207-224..

Burhans, D. E. and F. R. Thompson III. 2001. Relationship of songbird nest concealment to nest fate and flushing behavior of adults. Auk 118:237-242..

Chesser, R.K., B.E. Rodgers, J.K. Wickliffe, S. Gaschak, I. Chizhevsky, C.J. Phillips, and R.J. Baker. 2001. Accumulation of 137 Cesium and 90 Strontium form abiotic and biotic sources in rodents at Chornobyl, Ukraine. Environmental Toxicology and Chemistry 20:1927-1935.

Clark, M.E., K. A. Rose, D. A. Levine, and W. W. Hargrove. 2001. Predicting climate change effects on appalachian trout: combining GIS and individual-based modeling. Ecological Applictions, Vol. 11, No. 1, February 2001..

Franklin, A. B., D. R. Anderson, R. J. Gutierrez and K. P. Burnham. 2000. Climate, habitat quality, and fitness in Northern Spotted Owl populations in northwest California. Ecological Monographs 70: 539-590..

Franklin, A. B., D. R. Anderson, R. J. Gutierrez, and K. P. Burnham. 2000. Climate, habitat quality, and fitness in Northern Spotted Owl populations in northwest California. Ecological Monographs 70: 539-590..

Franklin, A. B., T. M. Shenk, D. R. Anderson, and K. P. Burnham. 2001. Statistical model selection: the alternative to null hypothesis testing. Pp. 75-90 in T. M. Shenk and A. B. Franklin, editors. Modeling in Natural Resource Management: Development, Interpretation, and Application. Island Press, Washington, D.C..

Friedlander, A.M. 2001. Essential fish habitat and the effective design of marine reserves: applications for marine ornamental fishes. Aquarium Sciences and Conservation 3:135-150..

Gannes, Leonard Z., K. A. Hatch, and B. Pinshow. 2001 How does time since feeding affect the fuels pigeons use during flight. Physiological and Biochemical Zoology 74(1):1-10..

Gulko, D., J. Maragos, A. Friedlander, C. Hunter, and R. Brainard. 2000. Status of coral reefs in the Hawaiian Archipelago. In: Wilkinson, C. (Ed.) Status of Coral Reefs of the World: 2000. Australian Institute of Marine Science. Cape Ferguson, Queensland, and Dampier, Western Australia. pp. 210-238 .

Haney, D. C., J. C. Vokoun and D. B. Noltie. 2001. Alarm pheromone recognition in a Missouri darter assemblage. Journal of Fish Bioloy 59:810-817..

Hayward, J. M. R., C. G. Ingersoll, J. R. Jones and D. W. Whites. 2001. Influence of sedument type and exposure time on likeness of colonization tray and background macroinvertebrate assemblages. Journal of Freshwater Ecology 16:565-573..

Hayward, R. S. and N. Wang. 2001. Failure to induce over-compensation of growth in maturing yellow perch. Journal of Fish Biology 59:126-140..

Hightower, J. E., J. R. Jackson, and K. H. Pollock. 2001. Using telemetry methods to estimate natural and fishing mortality of striped bass in Lake Gaston, North Carolina. Transactions of the American Fisheries Society 130:557-567..

Holland, K., A. Bush, C. Meyer, S. Kajiura, B. Wetherbee, and C. Lowe. 2001. Five tags applied to a single species in a single location: The tiger shark experience. In: Sibert, J.R. and J. Nielsen (Eds.) Electronic Tagging and Tracking in Marine Fisheries. Rev. Fish Biol. & Fisheries..

Kamler, J.F., W.V. Vallard, and K. Mote. 2000. Aggressive behavior exhibited by a swift fox. Canadian Field Naturalist 114:506. .

Kunkel, K.E., and D.H. Pletscher. 2000. Habitat factors affecting vulnerability of moose to predation by wolves in southeastern British Columbia. Canadian Journal of Zoology 8:150-157. .

Kunkel, K.E., and D.H. Pletscher. 2001. Winter hunting patterns of wolves in and near Glacier National Park, Montana. Journal of Wildlife Management 65(3):520-530. .

Ma, Z., M.M. Hart, and R.L. Redmond. 2001. Mapping vegetation across large geographic areas: integration of remote sensing and GIS to classify multisource data. Photogrammetric Engineering & Remote Sensing 67(3): 295-307. .

Mitchell, R., R. Fox, B. Racher, and M. Dvin. 2001. Saltcedar invasion in riparian ecosystems: problems and prospects for management. Abstracts of the 131st Meeting of the American Fisheries Society..

Mitchell, R.B., C.B. Dabbert, S.R. DuPree, D. Prochaska, and J. Cathey. 2000. Managing invasive yaupon holly in the Post Oak Savannah of Texas. Texas Tech University Research Highlights 31:26..

Mitchell, R.B., C.B. Dabbert, S.R. DuPree, D. Prochaska, and J. Cathey. 2001. Managing invasive yaupon holly in the Post Oak Savannah ecological region of Texas. Texas Parks and Wildlife Department Wildlife Research Highlights 5:63-64..

Pickett, S. T. A., M. L. Cadenasso, J. M. Grove, C. H. Nilon, R. V. Pouyat, W. C. Zipperer and R. Costanza. 2001. Urban ecological systems: linking terrestrial ecology, physical, and socioeconomic components in metropolitan areas. Annual Review of Ecology and Systematics 32:127-157..

Pletscher, D.H. and M.K. Schwartz. 2000. The tyranny of population growth. Journal of Conservation Biology 14(6):1918-1919. .

Raedeke, A. H., C. H. Nilon and J. S. Rikoon. 2001. Factors affecting landowner participation in ecosystem management: a case study in south-central Missouri. Wildlife Society Bulletin 29:195-206..

Redmond, R.L., J.C. Winne, D.W. Opitz, and M.V. Mangrich. 2001. Classifying and mapping wildfire severity. Imaging Notes 16: 24-25..

Rodgers, B.E., J.K. Wickliffe, C.J. Phillips, R.K. Chesser, and R.J. Baker. 2001. Experimental exposure of naive bank voles, Clethrionomys glareolus, to the Chornobyl, Ukraine environment: A tests of radioresistance. Environmental Toxicology and Chemistry 20:1936-1941.

Rodgers, B.E., R.K. Chesser, J.K. Wickliffe, C.J. Phillips and R.J. Baker. 2001. Sub-chronic exposure of BALB and C57BL strains of Mus musculus to the radioactive environment of the Chornobyl exclusion zone. Environmental Toxicology and Chemistry 20:2830-2835..

Roloff, G. J., J. J. Millspaugh, R. A. Gitzen and G. C. Brundige. 2001. Validation tests of a spatially explicit habitat effectiveness model for Rocky Mountain elk. Journal of Wildlife Management 65: 899-914..

Savarie, P. J., J. A. Shivik, G. C. White, J. C. Hurley, and L. Clark. 2001. Use of acetaminophen for large-scale control of Brown Treesnakes. Journal of Wildlife Management 65:356-365..

Schumacher, J.V., R.L. Redmond , M.M. Hart, and M.E. Jensen. 2001. Footprints on federal lands: GIS modeling of human use of public lands. Page 27 in N. Sappington, ed. ESRI Map Book, vol. 16. ESRI, Inc., Redlands, CA..

Schumacher, J.V., R.L. Redmond, M.M. Hart, and M.E. Jensen. 2001. Mapping patterns of human use and potential resource conflicts on public lands. Pp. 436-443 in: Jensen, M.E., and P.S. Bourgeron, eds. A Guidebook for Integrated Ecological Assessments. Springer-Verlag, New York..

Scribner, K.T., M.R. peterson, R.L. Fields, S.L. Talbot, J.M. Pearce, and R.K. Chesser. 2001. Sex-biased gene flow in spectacled eiders (Anatidae): Inferences from molecular markers with contrasting modes of inheritance. Evolution 55:2105-2115..

Shenk, T. M. and A. B. Franklin. 2001. Models in natural resource management: an introduction. Pages 1-8 in T. M. Thenk and A. B. Franklin, editors. Modeling in natural resource management: development, interpretation, and application. Island Press, Washington, D.C..

Thomas, J.W. and D.H. Pletscher. 2000. The convergence of ecology, conservation biology, and wildlife biology: necessary or redundant?. Wildlife Society Bulletin 8(3):546-549. .

Thompson, B. C. , M. A. Hughes, and M. C. Andersen. 2001. Effects of including non-breeding bird species on predicted bird distributions for conservation planning in New Mexico. Biological Conservation 100:229-242..

Thompson, F. R. III and R. M. DeGraaf. 2001. Conservation approaches for woody, early successional communities in the eastern United States. Wildlife Society Bulletin 29:483-494..

White, G. C. 2000. Modeling population dynamics. Pages 84-107 in S. Demarais and P. R. Krausman, eds. Ecology and management of large mammals in North America. Prentice-Hall, Upper Saddle River, New Jersey, USA..

White, G. C. 2000. Population viability analysis: data requirements and essential analyses. Pages 288-331 in L. Boitani and T. K. Fuller, eds. Research techniques in animal ecology: controversies and consequencies. Columbia University Press, New York, New York, USA..

White, G. C. 2001. Statistical models: keys to understanding the natural world. Pages 35-36 in T. M. Shenk and A. B. Franklin, editors. Modeling in Natural Resource Management. Island Press, Washington, D.C..

White, G. C. 2001. Why take calculus? Rigor in wildlife management. Wildlife Society Bulletin 29: 380-385..

White, G. C., D. J. Freddy, R. B. Gill, and J. H. Ellenberger. 2001. Effect of adult sex ratio on mule deer and elk productivity in Colorado. Journal of Wildlife Management 65:436-444..

Wickliffe, J.K., R.K. Chesser, B.E. Rodgers and R.J. Baker. 2001. Letter to Editor regarding Dubrova et al. 2000. Mutation Research 48:207-208..

Woodward, A. A., A. D. Fink and F. R. Thompson III. 2001. Edge effects and ecological traps: effects on shrubland birds in Missouri. Journal of Wildlife Management 65:668-675..

Technical Publications of Non-Student Affiliates

Boykin, K.G., A.D. DeLorenzo, B. McKown, R. Deitner, and B.C. Thompson. 2000. Southwest Regional Gap Analysis Project: The New Mexico Ecoregional Component (Start-up Project). Research Completion Report, Research Work Order No. 34, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 59pp..

Boykin, K.G., J. Bak, A.J. Kroll, M. Rivieccio, R. A. Deitner, B. C. Thompson, and M.C. Andersen. 2001. Application and assessment of species at risk conservation approaches at Fort Bliss Military Reservation and White Sands Missile Range, New Mexico and Texas. Research Completion Report to U.S. Army Environmental Center, Research Work Order No. 32, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 95pp + 10 app..

Brown, K.M., M.E. Richmond, and R.M. Erwin. 2001. Aspects of the breeding biology and foraging ecology of Laughing Gulls in the Jamaica Bay-Kennedy Airport complex: a basis for future wildlife management decisions. Technical Report to the National Park Service. 131 pp. August 31..

Clalrk, W. R., E. C. Hellgren, W. F. Porter, L. Rogers, S. L. Sheriff, and G. C. White. 2000. Report of the ad hoc Grizzly Bear Technical Manuscript Review Committee of The Wildlife Society. U.S.G.S. Biological Resources Division. 22 pages..

Costello, C.M., D.E. Jones, K.A. Green Hammond, R.M. Inman, K.H. Inman, B.C. Thompson, R.A. Deitner, and H.B. Quigley,. 2001. A study of New Mexico black bear ecology with models for population dynamics and habitat suitability. Final Report, Federal Aid in Wildlife Restoration Project W-131-R, New Mexico Department of Game and Fish, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces; Hornocker Wildlife Institute, Bozeman, Montana; and Ecological Modeling, Albuquerque, New Mexico. 197pp..

Finney, B. P. 2001. Stable isotope analysis of components of the lacustrine food web in Becharof Lake, Alaska. Final Report, RWO 90, to the U.S. Geological Survey. 10 pp. .

Hamazaki, T., K.G. Boykin, and B.C. Thompson. 2001. Incorporating landscape context in conservation planning models for Fort Bliss Military Reservation, New Mexico and Texas. Research Completion Report to Fort Bliss Directorate of Environment, Research Work Order No. 32, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 66pp..

Hogg, J., N. Weaver, J. Craighead, B. Steele, M. Pokorny, M. Mahr, R. Redmond, and F. Fisher. 2001. Vegetation patterns in the Salmon Selway Ecosystem: An improved land cover classification using Landsat TM and wilderness botanical surveys. Craighead Wildlife Wildlands Institute Monograph No. 2, Missoula, MT. 98 pp..

Loukmas, J.J., D.T. Mayack, and M.E. Richmond. 2000. Organochlorine and metal contaminant levels in Hudson River mammals. Annual Report to the New York State Department of Environmental Conservation. 56 pp..

Lueders, A. and P. L. Kennedy. 2001. Final Report: effects of water developments on breeding birds in the Little Missouri National Grasslands. U.S.G.S. Biological Resources Division, Northern Prairie Wildlife Research Station. .

Marks, J. S. 2000. Book Review: "Raptors at Risk." By R. D. Chancellor and B. U. Meyburg. Journal of Raptor Research 34(4): 342..

Marks, J. S., and G. F. Barrowclough. 2001. Book Review - Owls: A Guide to the Owls of the World. By C. Konig, F. Weick, and J.H. Becking. Auk 118(3): 810-812..

Pearlstine, L., K. Portier, and S. Smith. 2001. Textural discrimination of an invasive plant, Schinus terebinthifolius, from low altitude aerial digital imagery. Proceedings of the 18th Biennial Workshop on Color Photography & Videography in Resource Assessment. The American Soceity for Photogrammetry and Remote Sensing, Amherst, MA..

R. Lehman, and P. L. Kennedy. 2001. Pregress Report: evaluation of the Moon Lake raptor electrocution mitigation strategy. U.S. Fish and Wildlife Service..

Racher, B. and R. Mitchell. 2001. Fire application to saltcedar-dominated riparian areas: prescription development, hazardous fuels reduction, and ecosystem response. Joint Fire Science Program Principal Investigator Annual Report..

Reynolds, J. B. 2001. Standardized evaluation of electrofishing injury among North American freshwater sport fishes. Final Report, RWO 57, to the U.S. Fish and Wildlife Service. 92 pp..

Rosenfield, R.N. and L.J. Gissibl. 2000. The coopers hawk stretches its niche. Hawk Mountain Newsletter. 4 p..

Savidge, J. A., K. Dean-Bradley, and G. Rodda. 2001. Lessons learned from New Zealand conferences on eradication of island invasives. Brown Treesnake 2001: Research and Management, Oceanview Conference Center, Andersen Air Force Base, Guam..

Smith, C.R., S.D. DeGloria, M.E. Richmond, S.K. Gregory, M. Laba, S.D. Smith, J.L. Braden, E.H. Fegraus, J.J. Fiore, E.A. Hill, D.E. Ogurcak, J.T. Weber. 2001. The New York Gap Analysis Project Final Report. New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Cornell University, Ithaca, NY..

Smith, C.S., S.D. DeGloria, M.E. Richmond, S.K. Gregory, M. Laba, S.D. Smith, J.L. Braden, W.P. Brown, E.A. Hill. 2001. An Application of Gap Analysis Procedures to Facilitate Planning for Biodiversity Conservation in the Hudson River Valley, Final Report, Part 1: Gap Analysis of the Hudson River Valley and Part 2: Atlas of Predicted Ranges for Terrestrial Vertebrates in the Hudson River Valley. New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Cornell University, Ithaca, NY. 535 pp..

Thompson, B.C., and K. Boykin. 2000. Approach to regional animal modeling in the southwest. U.S. Department of the Interior, U.S. Geological Survey, Gap Analysis Bulletin. 9:27-28..

Villepique, J. T. and E. H. Follmann. 2001. Assessing and managing the impacts of humans along national park coastlines in southcentral Alaska: Bears as an indicator. Kenai Fjords National Park Black Bear Study. Final Report for 2000, RWO 96, to the Kenai Fjords National Park, National Park Service, PO Box 1727, Seward, AK 99664. .

White, G. C., and T. M. Shenk. 2000. Relationship of Preble's Meadow Jumping Mouse densities to vegetation cover. Preble's Meadow Jumping Mouse Scientific Team and Preble's Meadow Jumping Mouse Recovery Team..

White, G., C., and A. B. Franklin. 2000. Estimation of Mexican Spotted Owl densities and population sizes in the Upper Gila Recovery Unit - Prototype study. Rocky Mountain Station, U. S. Forest Service. 24 pages..

Winn, R. and D-M. Prindeville. December 2000. Analysis of stimuli and barriers to use of NM-GAP data by county, tribal, and regional planners. Research Completion Report to the National Gap Analysis Program, Research Work Order No. 37. Government Department, New Mexico State University, and New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico. 30pp. .

Young, K.E., Q.H. Hodgson, D. Browning, J.L. Lanser, B.C. Thompson, and R.Valdez. 2001. Determination of habitat suitability for aplomado falcons on public lands in southern New Mexico. Project Progress Report (March 2000-May 2001), Research Work Order No. 31, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, NM. 23pp. .

Theses and Dissertations of Affiliated Graduate Students

Bell, E. 2001. Survival, growth and movement of juvenile coho salmon (Oncorhynchus kisutch) over-wintering in alcoves, backwaters, and main channel pools in Prairie Creek, California

Blundell, G. M. 2001. Social organization and spatial relationships in coastal river otters: Assessing form and function of social groups, sex-biased dispersal, and gene flow. Ph.D. thesis, University of Alaska Fairbanks. 244 pp.

Burch, J. W. 2001. Evaluation of wolf density estimation from radiotelemetry data. MS thesis, University of Alaska Fairbanks. 55 pp.

Chapman, R. N. 2000. Characteristics of avian habitat within the southern mixed prairie of northwestern Oklahoma. M.S. Thesis, Oklahoma State University, Stillwater. 93 pp.

Ferral, D.M. 2001.

Finocchiaro, R. G. 2000. Effects of wastewater effluent on native wetland vegetation. MS Thesis, University of Missouri, Columbia. 107pp.

Weidel Huckstep, R. J. 2001. Influences of herbaceous vegetation on small mammal communities within forest stands in New York City parks. MS Thesis, University of Missouri, Columbia. 76pp.

Ilse, L. M. 2001. Porcupines, pinyon pines, and pine engraver beetles: multitrophic interactions in pinyon-juniper woodlands of Texas. Ph.D. Dissertation, Oklahoma State University, Stillwater. 106 pp.

Kroll, A. J. May 2001. Habitat characteristics and conservation of the genus Ashmunella (Gastropoda: Pulmonata: Polygyridae) of White Sands Missile Range (NM and TX) and Fort Bliss (TX). M.S. Thesis, New Mexico State University, Las Cruces. 39pp.

Levesque, L. P. 2001. Effect of land-use manipulations on habitat association and demography of mesocarnivores in the Cross Timbers Ecoregion of Oklahoma. M.S. Thesis, Oklahoma State University, Stillwater. 107 pp.

Malloy, T. P., Jr. 2001. Introgressive hybridization between native and non-native smallmouth bass in Oklahoma. Ph.D. Dissertation, Oklahoma State University, Stillwater. 48 pp.

Parris, J. 2000. Seasonal changes in water chemistry in a midwestern stream. MS Thesis, University of Missouri, Columbia. 207pp.

Runck, A. M. 2001. Molecular and morphological perspecctives on post-glacial colonization of Clethrionomys rutilus and Clethrionomys gapperi in southeast Alaska. M.S. thesis, University of Alaska Fairbanks. 89 pp.

Savereide, J. W. 2001. An age structured model for assessment and management of Copper River chinook salmon. M .S. thesis, University of Alaska Fairbanks. 122 pp.

Stark, R. C. 2001. Habitat use, daily movements, and body size of the Texas horned lizard in an urban environment in north-central Oklahoma. M.S. Thesis, Oklahoma State University, Stillwater. 76 pp.

Woodward, A. J. 2001. A landscape-level evaluation of the lesser prairie chicken. M.S. Thesis, Oklahoma State University, Stillwater. 68 pp.

The Cooperative Fish and Wildlife Research Units Program would like to thank each of the cooperators below for their continued support:

U.S. Geological Survey - Biological Resources Division
The Wildlife Management Institute
U. S. Fish and Wildlife Service

UNIVERSITY COOPERATORS

Auburn University
Clemson University
Colorado State University
Cornell University
Humboldt State University
Iowa State University
Kansas State University
Louisiana State University
Mississippi State University
Montana State University
New Mexico State University
North Carolina State University
Oklahoma State University
Oregon State University
Pennsylvania State University
South Dakota State University
Tennessee Technological University
Texas Tech University
University of Alaska - Fairbanks
University of Arizona
University of Arkansas
University of Arkansas - Pine Bluff
University of Florida
University of Georgia
University of Hawaii
University of Idaho
University of Maine
University of Maryland - Eastern Shore
University of Massachusetts
University of Minnesota
University of Missouri - Columbia
University of Montana
University of Vermont
University of Washington
University of Wisconsin - Madison
University of Wisconsin - Stevens Point
University of Wyoming
Utah State University
Virginia Polytechnic Institute
West Virginia University

STATE AGENCY COOPERATORS

Alabama Department of Conservation and Natural Resource
Alaska Department of Fish and Game
Arizona Game and Fish Commission
Arkansas Game and Fish Commission
California Department of Fish and Game
Colorado Division of Wildlife
Florida Game and Fish Commission
Georgia Department of Natural Resources
Hawaii Department of Land and Natural Resources
Idaho Department of Fish and Game
Iowa Department of Natural Resources
Kansas Department of Wildlife and Parks
Louisiana Department of Wildlife and Fisheries
Maine Department of Inland Fisheries and Wildlife
Maryland Department of Natural Resources
Massachusetts Division of Fisheries and Wildlife
Massachusetts Division of Marine Fisheries
Minnesota Department of Natural Resources
Mississippi Department of Wildlife, Fisheries and Parks
Missouri Department of Conservation
Montana Department of Fish, Wildlife and Parks
New Mexico Department of Game and Fish
New York Department of Environmental Conservation
North Carolina Wildlife Resources Commission
Oklahoma Department of Wildlife Conservation
Oregon Department of Fish and Wildlife
Pennsylvania Fish and Boat Commission
Pennsylvania Game Commission
South Carolina Department of Natural Resources
South Dakota Department of Game, Fish and Parks
Tennessee Wildlife Resources Agency
Texas Parks and Wildlife Department
Utah Division of Wildlife Resources
Vermont Department of Fish and Wildlife
Virginia Department of Game and Inland Fisheries
Washington Department of Ecology
Washington Department of Fish and Wildlife
Washington Department of Natural Resources
West Virginia Division of Natural Resources
Wisconsin Department of Natural Resources
Wyoming Game and Fish Commission

END

05-30-02